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THE
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PHILOSOPHY

VOL 28
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THE JOURNAL OF PHILOSOPHY

EDITED BY

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AND
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THE JOURNAL OF PHILOSOPHY

SCIENCE AND PHILOSOPHY

THE English journal, *Nature,* of June 7, 1930, contains a letter from Dr. F. G. Donnan, professor of chemistry in the University of London, suggesting the desirability and the possibility of an international conference of philosophers and scientists to promote the exploration of the common ground (if there really is any) between them. As one fitting occasion for such a conference, Professor Donnan mentions the meeting of the British Association for the Advancement of Science in 1931, this being the one hundredth anniversary of that famous organization for the promotion of science. It may be noted that this seems the more fitting as a time for the suggested conference in that this meeting of the British Association will be under the presidency of General the Right Honorable J. C. Smuts. From his notable book, *Holism and Evolution,* published four years ago, it is difficult to decide whether General Smuts, having outgrown his rôle as a warrior and statesman, should now be classed as philosopher or scientist.

In the same number of *Nature* there is an editorial discussion of the proposed conference which contains, among other interesting things, some reasons for it and some against it. The point is well made that were such an undertaking to be pitched on too grand a scale it might do more harm than good, so diverse and in some matters so antagonistic are the problems involved. To a later issue of the same journal, Mr. Wilford Trotter contributes an article under the title "Science and Philosophy." After calling attention to the fact that in the two communications just referred to, biology is mentioned but once and then incidentally, the assumption seeming to be that physics and chemistry would be the chief if not the only sciences concerned in the suggested conference; and after remarking that such a thing would hardly have been possible thirty years ago, Mr. Trotter writes: "The occasion indeed brings into sharp prominence the extent to which the biological sciences have, during the last thirty years, lost prestige in the intellectual world, and ceased to influence philosophic thought" (*Nature,* June 21, p. 924). Let anyone who may be dubious about Mr. Trotter's point until he sees it in particular instances, compare Professor John Dewey's *The Influence of Darwinism on Philosophy,* published in 1909, with his *The Quest for Certainty,* published just twenty years later. Very near the heart of the first is the recognition of the intellectually transforming

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character of the "genetic and experimental logic" inherent in Darwinism. In the last we find no express reference to this matter and only incidental reference to it even by implication. On the other hand, the physical sciences here receive abundant attention.

If one wants an illustration of the extent of, and the reason for, the "lost prestige" of biology in the humanistic interests of our day, he may find one such in *A Preface to Morals,* by Walter Lippman (1930). Here we come upon several paragraphs given to biologists, the chief purpose of which appears to be to point out that from the "particular point of view which the biologist adopts" man and the rest of the living world is "a mere flicker on the stream of time" and is "no concern of nature's" (p. 150).

The point raised by Mr. Trotter touches the edge of a problem of the utmost importance, it seems to me. With the question of the prestige of biology and of its influence on philosophic thought this article is not primarily concerned.[1] I wish to call attention to what looks to me like a more immediately urgent and humanly significant problem—that of the relation between "exact science" and "natural science." Whether this classification of the sciences plays as great a part in the institutional, the managerial, and the educational aspects of science in all countries as it does in the United States, I am not certain. However that may be, for some reason (seemingly more than anything else from the remarkable achievements of mathematical physics during the last few decades) it has come to pass throughout the learned world that when the word "science" is used by many

[1] While the statement is literally true that this article is not primarily concerned with the relation of biology to "philosophic thought," it seems desirable to indicate thus early in these remarks what my attitude is on the question. The longer I labor in this large vineyard, the more do I find the terms "science" and "philosophy" dropping into the background of my thinking. This is not because there is anything wrong with the words in themselves. Rather, it is in the fact that, although they are obviously aimed at certain ideas which for many years have been gaining a larger place in my interest and efforts, as commonly used they fail to express these ideas adequately.

The ideas referred to center around the word "knowledge." Having clarified my mind on the nature and function of knowledge, I proceed with the task of getting it, recognizing that the doing of it always involves the twofold mental activity of analysis and synthesis. The results are characterizable as analytic knowledge and synthetic knowledge. Then, corresponding to these two classificatorily distinct kinds of knowledge, as a student of nature, I think of myself as analyzing and synthesizing nature,—as an analytical naturalist on the one hand and a synthetical naturalist on the other hand. Finally, in case I feel like expanding to the *ism* size, it is easy to speak of analytical naturalism and synthetical naturalism. Now the analytical aspect of natural knowledge appears to be what the term "science" is chiefly aimed to cover; while the term "philosophy" is really aimed, so far as I can see, to cover the synthetical aspect of natural knowledge. At least such, briefly stated, is the standpoint from which this article has been written.

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moulders of thought in whatever departments of human interest, whether it be in literature and other forms of art, religion, morals, economics, sociology, or politics, it means "exact science" and nothing else. So far as today's widely accepted spokesmen for science are concerned, the ideal seems to be that the natural sciences of earlier times should be recognized as sciences only tentatively pending their final reduction to exact science, the ideal of which is atomic physics mathematically treated. And it is important to notice that this ideal does not rest on exactness of count and measure in the full scope of the concept of quantity. Such simple exactness as the five-digited type of limb in land vertebrates; of the 109 inches of wing spread in the California condor as the average measurements of four adult males; or of the one young per year of the European red deer, would not be accepted as data for any reasoning that deserves to be called scientific. Quantities large enough to require, and homonymous enough to admit of, treatment by statistical and equational methods of highly developed mathematics appear to be the *sine qua non* of exact science. But it is certain that the phenomena of living nature are too vast, too variant, too defiant of absolute fixity of law to admit of mathematical treatment alone, mathematical being thus understood.

The imperialistic tendencies of exact science under the chieftainship of mathematical physics is too obvious in our day to be overlooked. Nor could any true naturalist consistently object to this tendency were he to be convinced that such a conception of science really corresponds to nature and not merely to a particular conception of nature. If living nature as one segment of all nature is not so constituted as to be amenable to science thus conceived, one might suppose the present exalted claims of exact science need not be "viewed with alarm," but might be supposed to be self-corrective. Is it not fair to suppose, one might reason, that when more experience shall have cooled somewhat the perfervid enthusiasm caused by the splendid successes of late researches on some phenomena of lifeless nature, exact science will again become more tolerant of the (supposedly) cruder methods of the natural sciences?

I venture to call attention to an aspect of the situation that makes it more serious than such lenient judgment takes account of. The aspect is this: If the theory of evolution as applied to the human species be accepted without qualification—if, that is, attributes characteristic of this species which may be called spiritual are held to be the product of evolution no less certainly than are attributes called physical, then it follows that on such a conception of science as that now being renovated (the roots of the conception are easily traceable to Plato at least; they probably go to Pythagoras) by mathe-

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matical physics, there *never can be a real science of man.* A science of esthetics, of ethics, of society, for example, not to mention psychology, is forever impossible under such a conception. For man's identification with living nature generally is distinguished from lifeless nature—and, consequently, his taxonomic place in the animal world identifies his knowledge of himself with natural science.

It is true that no foremost protagonist of exact science has, so far as I have noticed, yet pronounced definitely against the possibility of self-knowledge that is scientific. Apparently a consideration tending to delay such pronouncement is the fact that physical anthropology is susceptible of large development in the direction of exact science. Quantitative determinations of the requisite kind are possible here over a wide range of characters. The osseous portions of the head, for instance, offer a large, easily accessible, important, and inviting opportunity for research. Likewise the human scapula, to mention only one other physical part, is, as recently pointed out to me, available for quantitative studies that point toward results of high interest. Now all this is, so far, wholly commendable. It contributes to man's self-knowledge which for two-and-a-half millennia at least has been recognized as a major requisite to man's highest good.

But notice now the astonishing implication carried by such a conception as that being noticed. There is implied a complete reversal of the Socratic-Platonic interpretation of the Delphic oracle's injunction, *Know thyself,* since by this interpretation man's spiritual nature almost exclusively was subject to the injunction.

Is the situation really as thus indicated? Is the course of reasoning which leads to the statement just made so remote from the daily life and needs of mankind, and so involved as to deprive it of practical value? From my large collection of recent opinions, to the effect that about the higher and highest attributes of man science has nothing to say, I notice two.

Speaking about the present calamity of unemployment, the President of the United States was recently reported in the daily papers as saying in effect that while science in its rôle of handmaiden to industry may do much to increase the opportunities for gaining a livelihood, those parts of our nature which suffer most from uncertainty about, and loss of, means of sustenance, and which manifest themselves in the best of family life, are entirely outside the province of science. These parts of us are, according to this theory, amenable to humanistic, not scientific, treatment. Otherwise expressed, the best parts of our nature are above and beyond the reach of some of the greatest of our efforts as intelligent beings even though these be made in full consciousness of our own welfare! No wonder that

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some of the most intelligently humane men and women of our time are driven to the verge of intellectual bankruptcy by such a paradoxical conception of human life.

Turn now to one other sign of the time in the situation: Within the last few weeks a notable book entitled *Toward Civilization* has appeared under the editorship of one of America's best-known and most highly esteemed leaders of historical and political thought, Professor Charles A. Beard. This is a symposium contributed to by sixteen "scientists and engineers." The published biographic sketches of the contributors reveal that "scientists" as here used does not include a single representative of the sciences of living nature. If this book be accepted as presenting a true diagnosis of the prevalent ills of civilization, students and manipulators of lifeless nature as contrasted with those of living nature, are both the bane and the hope of civilization, *so far as students and manipulators of nature are factors at all in civilization.*

The state of anxious bewilderment now widespread among us relative to the general situation, was strikingly illustrated by the lady clerk in the bookstore at which I bought my copy of *Toward Civilization.* "This is an interesting book she said (somewhat hesitatingly), because it is written by scientists; and scientists, we think, are destroying instead of making civilization." Now I do not presume for a moment that the "we" who spoke through this lady would be a whit less bewildered in thought and hostile in attitude toward scientists had the authorship of the book been divided fifty-fifty between physicists and biologists. There are two things about such humanistic outbursts against science that sorely need heeding. One is that such justification as they have are largely due to imperfections in science itself. The other is that for the removal of the imperfections science itself is first and chiefly responsible. The major problems of human life have outgrown traditional philosophy and ethics.

The main reason, I am quite sure, for biology's "lost prestige," in America at least, is less from its inability to "influence philosophic thought" than from its relative inability to contribute to prosperity. And prosperity with us to-day is *material* prosperity, the assumption being that there is no other prosperity—or, if there is, it is only an inclusion in, and a subordinate to, the "real thing."

But distressingly inadequate as this book should be felt to be by anybody who should fail to grasp the full implication of the word *toward* in its title, yet the main purpose of it, if I interpret it correctly, is excellent. "Toward" Civilization leaves wide open the question of how far toward.

Any real participant in the material prosperity of present-day

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America who should declare point blank his disbelief that there is a thing in it all that is "toward civilization" could be safely set down as either mostly fool or mostly liar. But whether this aspect of Americanism is toward or away from civilization, certain it is that scientists and engineers are front-rankers among those who are responsible for it. Even the mighty holders of the purse strings are fast coming to recognize their relative impotency without the aid of these technologists. But a large and growing number of Americans, though grateful beneficiaries of this prosperity, are learning to their consternation that the replacement of poverty by wealth may be merely the replacement of one kind by another kind of filth, squalor, and hideousness; and of disease and degeneracy, physical and spiritual. Experience is surely justifying the query as to whether any ill that may arise from too little material wealth may not have a counterbalancing ill arising from an excess of such wealth.

This contradictoriness that is proving such a terribly persistent accompaniment of quantitative and mechanical culture, appears to have impressed itself with special force on Professor Beard. He seems to have recognized more clearly than anyone else has that the "scientists and engineers," noblest of creators or arch destroyers, depending on which extreme of judgment one listens to, should have a chance to speak for themselves as human beings and not merely as technologists. The sole fault to be found with Professor Beard (though a grave one if appearances are an index to the truth of his position) is his acceptance of the claims of atomic physicists to be the only authoritative spokesman for science. Even for him, it appears that between man's knowledge of the phenomena of lifeless nature and his knowledge of the phenomena of his own nature there is no chance for a kind of knowledge that can properly be called science. Between science as reasoned knowledge of inanimate nature, and "humanism" as emotion tinged with reason, there is a chasm that can neither be filled nor bridged either by emotion or reason or the two combined. The belief confidently held a century ago that this chasm might be filled by a body of knowledge that could be appropriately named biology has been proved fatuous by late discoveries in that branch of physics which lies almost wholly beyond the range of sensory experience. And so it comes to pass, according to this view, that belief in an invisible world, a world which supernaturalistic philosophy, i.e., theology, has long held to be the only real world, wins the mighty backing of science. But the science thus won over, it can not be too carefully noticed, is "exact science," not "natural science." Natural science is that department of human knowledge which is concerned first and foremost with the part of the sensory-experienceable world which is always present, is everywhere, and can never be fully escaped.

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The coincident tendency in our day to exclude the natural sciences from the domain of true science, and the lost prestige of the biological sciences in the intellectual world are, I venture to maintain, causally related. The situation is so unfortunate, but yet so complex, as to amount almost to a stunning impasse. Nevertheless it can, I think, be shown to be susceptible of discussion with freedom from effort or even wish, to attach blame to any particular department of knowledge or professional group, simply from the fact that it is due to basic imperfections in our practice and theory of getting and of using natural knowledge. And I am prepared to present what seems to me strong reasons for believing there is now before us an open field for a type of effort in science which might prove a powerful ground-gainer toward civilization beyond the exceedingly important gains already made by "science and engineering." The purpose of this article is to point toward the field which invites this effort.

The supreme need not merely of modern science but of modern culture is such an overhauling and reconstruction of our conceptions of the science as shall leave no scrap of justification for the classification of the sciences into "exact" and "natural" with the meaning now attached to these terms.

Even a mere allusion to this vast matter can not entirely neglect the historic aspect of it since the entire problem of the nature of man and of all nature is involved. Or, stated in other and more weighty words, the problem, old as human culture itself, of Nature versus Beyond-and-Above-Nature is what is on our hands. We are at last near the kernel of the problem that had its modern opening when *The Origin of Species* and the other works of Charles Darwin, particularly *The Descent of Man,* and *The Expression of the Emotions in Men and Animals,* were given to the world. Too long has the defining of nature been left to men who were in no strict sense students of nature. As a consequence, Naturalism of the schools has been and still is very largely defined by men not seriously interested in nature; or, still worse, by men who were or men who are really hostile to nature. But the march of time and events has finally brought the day when nature may be defined by those who have detailed, sympathetic knowledge of her. Though by no means easy, the task is alluring since its performance will be in the company and spirit of Goethe and Alexander von Humboldt; of Voltaire and Lamarck; of Linnaeus and Cuvier; of the Darwin family; of Thoreau and the Agassizes, Louis and Alexander; of Jefferies, Muir, and Burroughs; and of many others which lack of space, not lack of inclination, forbids the naming.

One item in the historic aspect of the problem to which I have

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often referred I must now mention again. It is the views expressed by William Whewell on the relation between the "exact" and "natural" sciences. In 1847 Whewell wrote: "The mathematical and mathematico-physical sciences have, in a great degree, determined men's views of the general nature and form of scientific truth; while natural history has not yet had time or opportunity to exert its due influence upon current habits of philosophizing" (*History of Scientific Ideas*, ed. 2, London, John W. Parker & Son, p. 121). From his return again and again to this matter, it is clear that Whewell was much impressed by it. Once again thus: "Natural History *ought to form a part of intellectual education, in order to correct certain prejudices which arise from cultivating the intellect by means of mathematics alone; and in order to lead the student to see that the division of things into kinds, and the attribution and use of names are processes susceptible of great precision*" (italics as in the original) (*Novum organum renovatum*, London, John W. Parker & Son, 1858, p. 164).

Although Whewell was in a sense right in attributing the relative backwardness of natural history to lack of time and opportunity for development, it can be shown, I am quite sure, that to bring natural science into right relation to "habits of philosophizing" was exactly the inspiration of the most distinctive and important of all Aristotle's works regardless of the particular problem to which he set his mind and hand. That he fell far short of fully accomplishing his aim detracts nothing from the significance of his having seen rather clearly what needed to be done and having made a mighty effort to do it.[2]

From his nineteen or twenty years of study in the Academy, Aristotle undoubtedly became deeply and lastingly impressed with the universalizing power of the human mind as a factor in the acquirement of human knowledge and the relation of such knowledge to human good. But the historic evidence is now nearly conclusive that he also became impressed with the inadequacy of Plato's theory of Ideas as the basis of this knowledge. Sense data and the external world must, he saw, have a more fundamental place in the business than the Platonic doctrine makes adequate allowance for.

For one thing, Aristotle seems to have convinced himself that the famous Delphic injunction to self-knowledge (Γνωθι σαυτόν) had its tap root in the recognition of the bodily strength, health, and

[2] Several recent investigations of the Aristotelian problem have contributed very importantly to our knowledge of Aristotle's labors toward synthetic naturalism. D'Arcy Wentworth Thompson, W. D. Ross, and Charles Singer deserve special mention in this connection. But as to some of the most crucial aspects of the problem, Werner Jaeger in his *Aristoteles Grundlegung einer Geschichte seiner Entwicklung* is the most important.

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prowess of athlete participants in an ancient festival to Apollo, at least as much as in recognition of the souls of the athletes. In other words, Aristotle found that the ethical, half-mystical ideas which had come to dominate the injunction in the Socratic-Platonic teaching was not justified by its origin and earlier use.

Accordingly, having left Athens after the death of Plato, Aristotle apparently set himself resolutely to studying the particulars as well as the universalities of animal life generally as exhibited by sub-human as well as by human animals. The zeal, the industry, and the effectiveness (for the age) with which he applied himself to the investigation of sub-human animals, especially during his residence on the island of Lesbos where he had easy access to the luxurious fauna of the Aegean Sea, can be fully appreciated only by marine zoologists who have specialized in the very groups of animals on which he prosecuted his most original and careful investigations.

But I hazard the opinion that the significance of Aristotle as a natural scientist, acknowledged though he is by all zoologists as the unquestioned and supremely able ground-breaker in many of the main subdivisions of their science, can not be grasped by viewing him primarily as naturalist, or zoologist, or biologist in the specialized modern sense of these terms. His innate naturalism (probably through his Ionian heritage) might account in part for his devotion to zoology. But he was Greek as well as Ionian. Hence he was as innately "humanistic" as he was "naturalistic." Furthermore, he was under the mighty influence of the humanistic teaching of Plato and the Academy. Since, however, he had not even a tradition adverse to viewing man as animal, it was the most natural thing in the world for him to recognize that if the great injunction "know thyself," was ever to become really potent for human good, the one and only direct natural road of such knowledge must be comparative zoology, man himself being the highest member of the series to be studied. Aristotle's humanism as a phase of his naturalism explains in large part, we may suppose, his turning to zoology for his supreme interest and effort in natural science.

One angle more may be touched in concluding. Probably in none of Aristotle's writings does his recognition of man as animal find more constant and naïve expression than in the *Organon*. How endlessly he plays on the idea of animal as genus of which man is one species! That ox, for instance, is another familiar species of the same genus, he mentions with delicious naïveté (genus and species in the sense, of course, of formal logic). But never does the utilization of this familiar example of genus and species evince the least doubt about the truth or propriety of the example. Indeed its certainty and familiarity make it specially useful for illustrating all sorts of applications of the species-and-genus concept.

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But Aristotle appears to have had nothing more than the faintest glimmer, if he had that, of the phylogenetic relation between different species and genera such as is a corollary of the evolution theory. Consequently nothing he has given us in the several writings which constitute the *Organon* provides an adequate basis in logic and the theory of knowledge for dealing with the phenomena of "descent with modification." Nor has such a basis yet been provided so far as I can discover. Notice was taken above of Professor Dewey's recognition that the theory of evolution must profoundly affect logic. At first thought it is rather surprising to find that in both the essays noticed, that treating of Darwin's influence on philosophy, and in other writings, Dewey seems to assume that he at least has reshaped his logic and theory of knowledge in conformity with the new outlook upon living nature. But his late book (mentioned above) furnishes convincing evidence that he still lacks much of having accomplished such a reshaping. Nor on second thought does this appear surprising. For was it not full eighteen centuries after Aristotle did his great work as a groundbreaker in the science of living nature before other laborers in this field came fully to appreciate what he did and tried to do? And not even yet have laborers in other fields come to such appreciation. But it is scarcely three quarters of one century since the conception of the origin of the whole living world, man included, by a process of natural genesis has become widely accepted. Consequently, giving due consideration to the slowness with which men are apt to tackle problems that are remote from their accustomed ways of thinking, it is not to be wondered at that the knowledge-getting and knowledge-using processes which Aristotle investigated on the basis of the relatively stable, static nature which he knew, has not yet been adequately reinvestigated on the basis of the prodigeous generative power of nature as we now know it.

A revised organon of natural knowledge adapted to the conditions of the modern world—that is the task before the learned of our day. What part in it would fall to scientists and what part to philosophers need not at the moment concern us. But Professor Donnan's intimation that the task would be much broader than the terms "science" and "philosophy" as now commonly understood would include, is certain. Certain it is, too, that it is no job to be done by conferences and committee meetings.

It does, however, seem quite likely that such an international conference might do something toward clarifying thoughtful persons on what the issue really is; on what, as touching human good, is at stake; on what, broadly speaking, must be done; and something perhaps on how the task will have to be gone about.

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BOOK REVIEWS

Identity and Reality. EMILE MEYERSON. Authorized translation by Kate Loewenberg. New York: The Macmillan Co. 1930. Pp. 495.

Identität und Wirklichkeit. EMILE MEYERSON. Deutsch von Kurt Grelling. Eingeleitet unsw. von Leon Lichtenstein. Leipzig: Akademische Verlagsgesellschaft M. B. H. 1930. Pp. xl + 534.

The appearance simultaneously of two translations of M. Meyerson's *Identité et réalité,* a book which was first published about a quarter of a century ago, is evidence of the increasing interest not only in the philosophy of science, but also in the work of this highly erudite epistemologist. When this volume was printed, the first announcement of the special theory of relativity was in its infancy; Planck's quantum theory was but seven years old; and the discovery of radium—but not its preparation—only nine. Debye's law was not yet born and the Bohr atom was still in the realm of unrealized essences. It was, therefore, still the classical physics which was "science" for M. Meyerson, and his results, even though true of the theories he studied, do not necessarily apply to the physics of today. Before discussing whether they do or not, we should first present the thesis of his study.

There are two sides to M. Meyerson's researches, one the epistemological hypothesis on which they are based, the other the actual findings.

The epistemological hypothesis is that an empirical study of scientific reasoning will reveal the fundamental "laws which rule the human mind" (p. 8, Eng. tr.). Now it is clear that such an hypothesis demands a clear conception of what "science" is and in the thought of M. Meyerson science turns out to be the so-called physical sciences, mathematics, astronomy, physics, and chemistry. Obviously if the biological, historical, and social sciences are omitted from one's investigations, the chances of finding a homogeneous scientific method are greatly increased, and by showing that non-mechanical physical theories and common sense approach physical science as an ideal, M. Meyerson gives at least an *argumentum ad hominem* in favor of including nothing but physical science in his investigations. As a matter of fact, a good, if not conclusive, case can be made out for the very opposite hypothesis, namely, that the physical sciences are now orienting themselves in the direction of the biological and social sciences. But at any rate, in 1930 it would be difficult for anyone to accept without further discussion the guiding rule of the Meyersonian point of view. The most conservative student would insist that at least there are two scientific methods.

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Whether they are both to be called "scientific" or not is a question of nomenclature. Were M. Meyerson telling us how we must improve our thinking, he might use his word "scientific" in a eulogistic sense. But since his very thesis is that his studies will show us how we do think, it is clear that the apparent difference between the two kinds of science can not properly be overlooked.

It would also be desirable, were M. Meyerson writing to-day, to justify his claim that the "laws which rule the human mind" are to be found in science. It was easier in 1907 to lay down the "identity of the progress of conscious and unconscious thought" as a heuristic principle. To-day plurality does not annoy us as much as it did our fathers. We should be willing to entertain the possibilities (*a*) that though has evolved—not necessarily growing better, or/and (*b*) that at any one time there are several ways of thinking. This is no place perhaps to introduce reasons for either of these points of view. They should not, of course, be entertained if there is no good reason to entertain them, simply for the sake of being contrary-minded. Yet to-day they do not seem so obviously absurd as they probably did in 1907 and had they been entertained, it is at least possible that different results would have ensued in the volumes whose translations we are reviewing. That they did not seriously occupy M. Meyerson's attention is good evidence of how swiftly philosophy has changed in twenty-five years. For I doubt whether anyone performing the same task to-day would dream of overlooking them.

The outcome of M. Meyerson's study is that two great principles control man's interpretation of nature. One of these he calls the principle of legality, the other the principle of causality. The former of these asserts that Nature is so built that its laws endure. But to have enduring laws means, according to M. Meyerson, that the future will reproduce the past, or better, that time is irrelevant to the occurrence of events. It is that irrelevancy of time which makes prediction possible. The principle of causality is the irrelevancy of time to *things*. Just as the scientist believes that objects can move freely about in space, so he believes that they can move freely about in time without essential change.[1] This principle is foreshadowed in the traditional phrase, *causa aequat effectum*. If the cause equals the effect, both growth and diminution must be explained away and the Lucretian formula, *ex nihilo nihil*, accepted with perfect literalness. It is obvious, moreover, that if the cause is really equal to the effect, then "nothing happens," and the apparent change in a causal process must be explained away.

[1] This, of course, is not strictly true according to the general theory of relativity, but M. Meyerson was writing too early in the twentieth century to discuss that. He takes it up in *La déduction relativiste*.

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To explain it away is the task of science. And science accomplishes that task by the "principles of conservation," i.e., the principles of inertia, of matter, of energy, by the elimination of time, and by the unification of matter. The principles of conservation are explained by M. Meyerson as being neither *a priori* nor *a posteriori.* If they were the former, they would have appeared at the birth of science, whereas the appearance of each is dated. Were they *a posteriori,* their empirical proof would be more than approximate. Yet though theoretically physicists can approach as closely as they wish to a complete empirical demonstration of the principles of conservation, yet there is always a gap between the measurements which they "ought" to get and those they do get. These principles are therefore accepted because they are plausible, asserting something which the human mind wants to believe to be true and yet whose truth it can not demonstrate with apodictic certainty. This should immediately raise the question of the relation of mathematics to experience and the nature of the empirical verification of deduced theorems. It should also make one ask exactly what the scientist measures in such verification and whether it is identical with the subject-matter of his laws. In the case of inertia, matter, and energy, it is clear that no one can approach them directly, for they are what M. Meyerson would call *êtres fictifs,* created for the sole purpose of unifying the diversities of direct experience. Might not a positivist object that since such entities are known to be fictions—in one sense of this much abused word—it would be just as well to eliminate them or at least not to found a metaphysics upon them?

The elimination of time is performed by the dogma of reversibility. Reversibility is assured by the causal postulate, *causa aequat effectum,* but as this in science is always expressed in the form of equations, the effect looks as if it were identical with the cause and whatever operation is symbolized by the sign of equality looks as if it were a symmetrical relation. But though physical science does express its theorems often in the form of equations, there are some which result in inequalities, such as the famous second law of thermodynamics. The second law is given a chapter to itself in *Identity and Reality,* a chapter which points out how unsatisfactory it is to scientists and how they have tried to avoid its consequences. But aside from these arguments—whose logical culmination is "two-way time"—there is a theory of change underlying the *causa aequat effectum* formula which need not be too docilely accepted by the twentieth century. This theory comes out very clearly in parts of Aristotle and gives rise to the concept of potentiality, as M. Meyerson sees very clearly in his second book, *De l'explication dans les sciences.* This is the theory that change is the passage

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from one entity to another of what we might call "floating qualities," which are about the same thing, I suppose, as Mr. Whitehead's "eternal objects," not to mention Mr. Santayana's essences. On the basis of what is only a metaphor after all, a property to appear in one object or event must have "come from" some other object or event, for it could not have been created *ex nihilo*. The whole trouble lies in the meaning of the words "come from," which illustrates how the metaphor hypostatizes all properties. It is, furthermore, a gross simplification of a causal situation. Hume has instilled in us the habit of speaking of causal series, as if they could be properly symbolized, *a, b, c, d.* . . . As a matter of fact, what most people call a causal incident does not depend upon one variable, but on three, the "cause," the conditions, and the "patient." The effect varies with at least those three and what way have we of making it literally pre-exist in those three? Moreover, which entity you call cause or agent and which you call patient in a causal situation is largely arbitrary—for even when two billiard balls collide, a change occurs in both, not merely in one. It would be more accurate to symbolize causation as vector laws are symbolized rather than as simple linear series. Is there any way of finding a product in either a multiplier or a multiplicand? M. Meyerson's theory of reasoning is largely responsible for this simplification of causality. In *De l'explication dans les sciences* he treats it—following Poincaré—as a *cascade d'équations*. We have a right to-day (*De l'explication* was written, however, in 1920) to question that theory of deduction. I fail to see how the logic of Russell and Whitehead can be "reduced" to equivalences, not to speak of identities.[2] But the theory of the *cascade d'équations* fits in beautifully with the thesis of *Identity and Reality* and if each equation represents a bit of causation, it justifies the thesis that causality is the denial of change and the revelation of identity.

It will be noticed, moreover, that this theory of reasoning and of causation does not question the truth of the Aristotelian theory of the concept or the essence. M. Meyerson in conversation—and no doubt elsewhere—has said that the Aristotelian logic, i.e., what is fundamentally the ontology of Socratic definition by induction, articulates the instinctive reasoning processes of the human mind. Be that as it may, it can only by a perversion of facts be made to square with statistical reasoning, for in a statistical grouping there is no self-identical essence present in all the members of the group. The property in which one is interested varies more or less throughout the group. It is, I think, pretty well agreed that scientific laws

[2] This question is treated at greater length in the reviewer's *Critical Analysis of the Philosophy of Emile Meyerson*, Johns Hopkins Press, 1930.

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can not express factors which are not quantitative and no one to-day would identify quantities which are relational with terms. The Aristotelian logic, one might say, was a logic of nouns; "modern" logic is a logic of verbs and though such slogans are often misleading, this one at least orients us towards understanding the essential difference between the two.

With time eliminated, there remains diversity to be explained away. It must be explained away, for as long as it remains, the causal equations are not strictly true. The elimination of diversity appears very clearly in chemistry, in the atomic theory, and in physics as early at least as Galileo. We have unquestionably—in spite of Ostwald—made chemistry more satisfying to the reason by the theory of the elements whose purely spatial arrangements determine the divers traits of the compounds which they form. It would also be a very happy event if an hypothesis like that of Prout's were to be accepted by chemists in general and, in a sense, the "electron theory" is an hypothesis like that of Prout's. M. Meyerson has pointed out that motion in space is neutral to the internal constitution of things according to classical science and that consequently science does not object to differences in spatial conformation as the explanation of differences in experiental properties. But the "neutrality" of space follows from its "homogeneity" and the present reviewer finds it difficult to imagine in what sense of the word the space of the general theory of relativity is homogeneous. Certainly motion through it is held to be highly prejudicial to what M. Meyerson calls the essential property of matter—mass—and certainly the use of gravitational fields in physical theory can not be said to leave space as indifferent to its "contents" as it was in 1907. Hence the drive towards an Eleatic unity of being seems to have been arrested and if M. Meyerson were writing to-day, he might change this point.[3]

It has appeared, I think, that the reduction of causal relations to identity can never be complete. For the equality symbol does, as we have said, take the place of an operation which operation does not appear openly in the equation. This involves a break in the universe between the world of science and the world of experience as complete as the break between the two worlds of Plato. The essential qualities of the world which forms the subject-matter of science are denied in that intellectual discipline whose subject-matter they are.

[3] If he did change it, he would probably have to change his entire philosophy, for the real basis of Meyersonian causalism is in geometrization. This comes out very clearly in *De l'explication*, and in *La déduction relativiste* he seems satisfied that if he can show relativity to be a "reduction" of physics to geometry, he has proved his thesis, *viz.*, that the technique of relativity-physics is not essentially different from that of classical physics.

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Thus Meyersonian science denies the "reality" of time, diversity, change, transitive action, sensory qualities, direction. Such properties M. Meyerson calls *irrationals* and if we take his qualification and the theory of reason which underlies it seriously, we must indeed conclude that any subject-matter indissolubly welded to time and variety can not be open to scientific treatment. Thus the biological, social, and historical sciences are forever excluded from the Academy. What are we to do about this? Be satisfied with heaping derogatory adjective upon these disciplines? Admit the existence of two species of science? (But then what happens to the "laws which rule human thinking"?) Ask physical science to reform? It would be perhaps improper in what is only a review of translations of *Identité et réalité* to attempt the answer.

But the question continues to force itself upon one's attention, particularly in view of the increased use of statistics even in physical science. It is obvious that when the physicist starts out by saying that a particle of matter can move in any one of six directions, he abandons the attempt to explain why it should go in one direction rather than in another and thus produces "legalistic" rather than "causalistic" science. One has the feeling that the biological, historical, and social sciences made desirable progress only when they abandoned causalism and stuck to legalism, which became effective by their extended use of statistics. One has also the feeling that physical science is moving in the same direction—certainly in its explorations of the "microscopic" realm. That tendency is unreflected, naturally enough, in *Identity and Reality*, so that the book's main importance, one says in all admiration for its erudition, is historical. The English translator has left her text as she found it. The German has tried to bring it up to date in a series of footnotes. But these footnotes—except possibly in one place (p. 42)—reveal no inadequacies of the text to deal with contemporary as well as with classical physics. That is interesting, since the translator is a much more competent critic of the philosophy of science than his present reviewer. The observations of this review, moreover, are offered not so much as objections, but as an invitation for further enlightenment. For they have seemed to me inevitable if one is to approach the subject with philosophic detachment.

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From Orpheus to Paul. VITTORIO D. MACCHIORO. New York: Henry Holt & Co. 1930. Pp. 262.

This book, by a Privatdocent of Archaeology in the University of Naples, contains the Schermerhorn Lectures in Religion at Columbia University for 1929. It has ten chapters under the following titles:

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Greek Mysticism, The Orphic Ecstasy, The Orphic Mystery, The Orphic Creed, The Origin of Orphism, The Conquest of Greece, Orphism and Greek Philosophy, Orphism and Christianity, Past and Future. There are twelve illustrations, mostly reproductions of ancient paintings and bas-reliefs of mystic scenes and ceremonies. There are no foot-notes, but thirty-two pages at the back of the volume are given over to copious references to authorities, arranged by chapters. Finally there is a brief index, covering three and a half pages.

In substance the book represents an attempt, first, to reconstruct the main features of the Orphic religion; secondly, to assess its influence on Greek religion, Greek philosophy, and early Christianity; and thirdly, to suggest the necessity and proper place for mythical and mystical elements in the religion of the future.

For the reconstruction of Orphism, the author ekes out the scanty and scattered references of the ordinary presentable classical authors with a plenteous stock of evidence from what might be called the attic of ancient literature, as well as from archaeological data, anthropology, and comparative religion. This interest in the more obscure antiques, to be quite frank, often signifies a crank; but the reader of the volume under review will find a sane discussion of the material. To be sure, the whole of this material is of such a recondite and esoteric nature that it permits of no more than probable or plausible interpretations, frequently through the medium of some analogy; and the author might have done well to make this plain at the outset. It is perhaps the habit of mind induced by contact with such inevitable vaguenesses that indulges in supergeneralities like the following: ". . . the Greeks had no rigid line of demarcation between the spiritual and the material world . . ."(p. 26); "The distinction between myth and history did not exist at all for the Greeks" (p. 78); "In Plato's mind myth and truth are one and the same thing" (p. 177). There is a kind of intellectual immodesty about such judgments that will make them offensive to a more delicately balanced mind. On the other hand, the author is candid in presenting the evidence for his deductions—the works are exposed, as far as possible; and he is unusually deft in assembling the main parts in such a way that they stand out clearly and in the end give an impression of wholeness. The result is a better delineation of Orphism (always remembering that we are in a region of low probability) than any other that I know.

Orphism lacked the imaginative content to be serviceable for art, which accordingly kept to the state religion; but "philosophy was from its very beginnings deeply under Orphic influences" (p. 166). Although these influences made their first appearance in Pythagoras,

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it was Heraclitus who brought them to a dominating position in Greek speculation. "Without doubt he was a pure product of the mystery; his idea of knowledge agreed thoroughly with the mystic process of ecstasy. Rationalism was perfectly alien to him. The source of his knowledge was not reflection but intuition." "His amazing doctrine of the oneness of opposite states and of the eternal passing of things can be explained only in the light of the mysteries" (p. 175). Now I think we must agree with Professor Macchioro (and with Mr. Cornford, *From Religion to Philosophy*) that there was a mystical strain in Heraclitus, and indeed in several other philosophers, that can be connected up with the mystery cults; but I doubt if this strain was as pervasive as these authors believe, and I am fairly clear that its presence did not mean the complete absence of "rationalism." Let us admit that what we call intuition was the source of knowledge for the Ephesian philosopher; still that ought not to warrant us in reading into his system a modern distinction between "emotion" (p. 176) and "reflection" as avenues to truth, and then identifying the emotion with ecstasy. Let us admit again that the oneness of opposites was as mysterious as the Orphic identification of the living and the dead; yet it is certainly not mere mystery. Heraclitus, even more than his great modern admirer, Hegel, has always eluded the efforts of commentators to confine him within any such generous and wholesale classification as is employed by the present author.

The thought of Empedocles and Parmenides had Orphic elements, but the second great step in the philosophic career of Orphism was taken by Plato. "On careful analysis, Plato's philosophy appears to be a purified and enlarged Orphism" (p. 176). Later (p. 180) we are told that "Plato's philosophy appears to be constituted of two different elements: the first one is the Socratic criticism, the second is mysticism." This mysticism (= Pythagoreanism = Orphism) comes out in its purity in the great myths; but it also influenced the critical and intellectual side of the Platonic system, typified in the Theory of Ideas, by furnishing it with a realistic background; and in general, "it played the part of faith toward thought" (p. 183).

The full meaning of these excerpts must, of course, be gathered from a study of the context in which they occur; and they are significant here only as expressions chosen by the author himself for the conveyance of his thought. The old-fashioned historian or philosopher certainly ought to value them as containing fresh and illuminating suggestions for interpretation, but he can not fail to feel certain doubts, the most serious of which will probably be the following. Does it make for historical accuracy to use Orphism as

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a generic term for Greek mysticism, so that it can become a predicate for Pythagoreanism, the Eleusinian cult, and the Platonic philosophy? Does it not imply an extreme form of evolutionary doctrine to hold that "the Platonic theory of ideas is to be regarded as the outcome or survival of a very ancient belief which he merely developed and improved" (p. 180)? If one remembers the many passages in Plato's writings where to seem is contrasted with to be, and again the laborious distinctions between opinion and knowledge, and finally the straightforward recognition of error in the *Theaetetus*, would it be a sober and adequate account to say that "the so-called Platonic idealism is only an absolute realism, according to which everything that man thinks is endowed with objectivity" (p. 179)?

Professor Macchioro believes we must assume that there was no interruption in the development of Orphism during Hellenistic times, at least among the lower classes, in order to account for the leading part it played in the making of Christian theology, notably in the work of St. Paul. This rôle is defined by a comparison between the Orphic Zagreus and the Pauline Christ, on the following points: "1. Zagreus is son of Zeus. 2. The Titans kill him. 3. Zeus calls him back to life. 4. He takes him into heaven. 5. He gives him the kingdom. No one would deny that these points agree perfectly with the Pauline Christ, son of God, who was killed, resurrected, ascended to heaven and received the kingdom. The only point of difference is that Zagreus was torn to pieces and Christ was crucified" (pp. 189, 190). Surely in attempting to establish an identity between two such apparently diverse phenomena as Greek Orphism and Jewish Christianity, an author should be most meticulous on these matters. First, the evidence should be carefully weighed and its value estimated. Now if we take point 5 above, we find the only references are to Proclus, who wrote about four centuries after Christ, but who quotes a supposedly Orphic hymn of unknown date and origin concerning Dionysus. From such data several different conclusions are possible, and no one of them could be more than highly tentative. Secondly, the extent of the identity should be clearly indicated. What Proclus says is that Zeus made Dionysus king of the mundane gods. Does this justify the author in saying that Zeus gave Dionysus "the" kingdom and then implying that this metaphor was identical in meaning with that which St. Paul uses for Jesus? Thirdly, and most important of all, suggestions of actual causal connection should be discreetly stated. Granted that there is the agreement which the author believes between Orphic and Pauline doctrines, does he mean to imply that God gave Christ the kingdom because Zeus had given Dionysus

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a kingdom? Professor Macchioro could not possibly entertain such a notion. Then does he suggest that Paul supposed God gave Christ the kingdom because the Orphics supposed Zeus had given Dionysus the kingdom? But why need Paul have supposed what the Orphics supposed because they supposed it? If the causal factor was operative at all, might he not have adopted the Orphic expression because he thought it was a good expression for what he already had in mind? In this case, its connection with Orphism would be unimportant in comparison with the fact that it fitted St. Paul's data—he would adopt it, not because it was Orphic, but because it was good. But need there be any causal connection at all—that is, need the fact of resemblance or agreement prove a causal connection? St. Paul might have got the notion from the Apostles, who got it from Jesus, who got it from ancient Jewish sources or invented it for his own purposes; and in this case there would be agreement between St. Paul's phrases and the Orphic hymns, but no causal connection. Does every identity establish causality?

These may be historical and psychological subtleties which the straightforward efficiency of the anthropologist spurns; but as long as he refuses to face them candidly, he can not blame scholars who are cursed with such scruples if they on their part refuse to go all the way with him in concluding that "Pauline theology had an Orphic origin" (p. 201) or that "Christianity is, from a merely historical viewpoint, an enormous Greek hero cult devoted to a Jewish Messiah" (p. 203).

In the final chapter the author discusses in more general terms the value of Orphism as mediating between Judaism and the Greek world by furnishing the myth as the appropriate expression for the divine, the mysterious, and the ineffable elements of experience; and he suggests that religious progress in the future lies along the line of transforming theology into mythology, so that the religious doctrine of God need no longer pretend to be a kind of knowledge but may establish its independent value as a "complex of symbols by which man realizes his faith" (p. 223). It is patent that here are hints of profound interest both to the historian and the philosopher; and though the hints may not be new in essence, their fresh setting gives them a renewed vigor.

Taken as a whole, the book should not be read by old men, because its extreme statements will simply make them angry without doing them any good; nor by young men, because it will intoxicate them. But those of middle age, who have plasticity enough to respond a little to foreign influences and sense enough not to lose their heads, will find the book full of brilliant interpretations and stimulating suggestions.

PRINCETON UNIVERSITY. ROBERT SCOON.

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The Psychology of Philosophers. ALEXANDER HERZBERG. Translated by E. B. F. Wareing. (International Library of Psychology, Philosophy, and Scientific Method.) New York: Harcourt, Brace & Co. 1929. Pp. x + 228.

Herzberg presents this work as an impartial, inductive study of certain mental traits of thirty eminent philosophers, from Socrates to Nietzsche. With a few questionable cases (Herbart, Fechner, Stirner, Hartmann), the list is fairly enough chosen. His short chapters are well organized and clearly written: the collection of biographical bits is generally interesting and occasionally impressive. But the book is far from being impartial and scientific: the method is faulty, and the data seem picked and sometimes twisted to support a thesis.

In their professional activities, in their handling of money matters, in their relations with women, and so on, the records of the thirty are searched for evidence of abnormality. A few paragraphs at the beginning of a chapter state what the author adopts as normal for the topic in question, and this important part of the problem is handled in a generally off-hand and inadequate fashion. Herzberg's thesis is that the great philosophers, as a group, have been men whose mental peculiarities positively disqualified them for practical life, that they were abnormally inhibited and abnormally sensitive, and that their work should be understood as a substitute activity, an escape into a make-believe world.

Some details of his evidence may be mentioned. There were four unhappy marriages and two separations (one Stirner's) among the fifteen of the group who married; and to indicate the degree of abnormality which this represents Herzberg compares these figures with the fractional percentage of divorced males in Germany in the year 1890. Twenty-two he lists as "diffident in, or unsuited for, social intercourse"; e.g., Plato, who was characterized by "immense egotism and obstinacy," and Leibnitz, who wrote to a friend (when he was 27 years old) that he felt himself seriously deficient in social manners. Among those who were "almost entirely passive" politically he includes Fichte. Plato, Aristotle, and Leibnitz were "clumsy" in their political activities. The writing of poetry, and the development of a strong interest in religion, are also signs, Herzberg argues, of an abnormally inhibited personality: half of the thirty can be convicted of having written some poetry, and most of them were seriously interested in religion. When the field of evidence is made so inclusive one is somewhat surprised to find that the author omits mention of some known and striking peculiarities in several of his individuals; e.g., Hobbes, Schopenhauer, Comte, and Nietzsche.

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Another bit of his argument may be quoted. In the latter part of the book much emphasis is laid on the hypersensitiveness of the philosophers. Herzberg remarks that this trait was actually recorded in only a few of the cases in his group, but that very likely the biographers merely overlooked it. This "presumption" is strengthened by the observation that "hypersensitiveness, as everyday experience shows, is often found associated with physical fragility, weakness, or chronic illness. . . . Bruno was pale-faced and slight of build, Bacon as a child was fragile and ailing," etc.

All idealism is to be understood as the make-believe construction of over-inhibited and over-sensitive persons. And as for the materialists (since the true metaphysics is, one infers, a dualism), "the defence of so preposterous a teaching as materialism is a proof of their reactive character, i.e., these philosophers must have felt the need of painting the reality of the physical world in as effective and striking colors as possible in order to drive out a tendency to idealism."

After an earlier chapter to show that the philosophers were a neurotic group he ends with the seemingly not quite harmonious conclusion that philosophy has an important "psycho-hygienic value," being in fact an outlet activity which can save inhibited persons from neuroses. "Thus the magic garden which a powerful spirit has created to shelter it from the inclemencies of life, becomes a public pleasure-ground affording recreation and health to many of life's wounded who have no plot of earth of their own."

CHARLES H. TOLL.

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NOTES AND NEWS

We print below the program of the Philosophical Union of the University of California at Los Angeles, for the year 1930–1931.

October 29: "Morality as a Fine Art".....*R. F. A. Hoernlé*
Discussion by *John E. Boodin.*

November: "Tradition and Modernism in Philosophy"
Wilbur M. Urban

January: (Subject to be announced).....*George H. Mead*
Discussion by *H. W. Carr.*

February: "Whither American Philosophy".....*James H. Tufts*
Discussion by *F. C. S. Schiller.*

March: "Racial Prejudice".....*George M. Stratton*
Discussion by *B. C. Ewer.*

April: Student Meeting. Three papers, written by students in the Department of Philosophy and selected on a competitive basis.

April: Symposium: "Reason and Religion."
Speakers: *Theodore G. Soares; Carl S. Patton; J. Hudon Ballard.*

May: Symposium: "The Relation of Education to Public Morality."
Speakers: *Maurice W. Keatinge; Sir John Adams; Ernest C. Moore.*

President of the Union: Dean Charles H. Rieber; Executive Secretary: Professor Clifford L. Barrett, University of California at Los Angeles.

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The Relativity of Inertial Mass. F. P. HOSKYN.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVII. No. 22. October 23, 1930.

The Seventh International Congress of Philosophy. BRAND BLANSHARD.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVII. No. 23. November 6, 1930.

The Dialectical Argument against Absolute Simultaneity. I. ARTHUR O. LOVEJOY.
How "Propositions" Mean. F. C. S. SCHILLER.
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The Dialectical Argument against Absolute Simultaneity. II. ARTHUR O. LOVEJOY.
The Adjectival Theory of Matter. F. P. HOSKYN.
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THE JOURNAL OF PHILOSOPHY

MR. LOVEJOY'S COUNTER-REVOLUTION. I.

LIKE other excellent strategists Mr. Lovejoy appears to believe that the best defense is an attack. In *The Revolt Against Dualism* it is his purpose to defend the "hypothesis of representative ideas" against the assaults of its critics. These critics are numerous and frequently have little more in common than their antipathy to the hypothesis in question. On this one point, however, there has been a rather surprising community of doctrine, since "representative ideas" are not at all popular with the philosophers of this generation. They seem not exactly a favorite subject with Mr. Lovejoy himself, since all examination of the "hypothesis" on its own merits is deferred to the last possible moment and then approached in curiously oblique and negative fashion. Instead we are offered a series of excursions into the territory of the attacking party. These are always effective, often brilliantly executed, and sometimes decisive. But for those who have awaited the publication of the second series of Carus lectures in the hope of securing an authoritative statement of the constructive case for epistemological dualism from its ablest advocate, such excursions will seem quite subordinate to the main and persistent problem. How does the case *for* dualism stand in the light of Mr. Lovejoy's important contribution to the subject? The following paper attempts to answer this question.

It is a great pity that the author has not subjected the term "dualism" itself to that species of searching analysis of which he is so thorough a master. In default of such analysis the question we have propounded hardly permits an unequivocal answer. For there are dualists *and* dualists, and those who sympathize most heartily with Mr. Lovejoy's remarks on the validity of common-sense realism and the fatuity of recent attempts to avoid its solidly grounded conclusions may yet be wholly at variance with other and no less essential features of his doctrine. As I shall try to show later on, there are at least seventeen dualisms propounded in the course of this thorough-going study and not all of these by any means are consistent with what appears to be the author's central thesis. There is one particular dualism which underlies most of Mr. Lovejoy's reasoning and nearly all his polemical observations. And this specific dualism can be shown, I think, to be very probably invalid. And since it is foundational to the "hypothesis of representative ideas" we may conclude that that hypothesis is not a plausible one

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and that the "revolt" against it is so far thoroughly justified. I have called this the dualism of dogmatic common sense, and Part I of this paper is devoted to its analysis. There remain, however, a number of other dualistic positions which the author also espouses, of which all may be valid and some at least seem highly probable. These have seemed in the past, both to the critics and defenders of dualism, to be so implicated in the first view that they stand or fall with it. Hence Mr. Lovejoy's defense of it on the ground that these other dualisms are unavoidable. Hence also the largely misguided attempts of critics to avoid these dualisms because the dogmatism of common sense, developed into a complete and exclusive theory of knowledge, is clearly unacceptable. In Part II I will try to show that this connection does not exist in fact and that some forms of dualism, for which I share Mr. Lovejoy's own enthusiasm, are actually rendered more probable by the surrender to the dubious initial hypothesis with which he has attempted to link them.

I. The Limitations of Common Sense

The basis of Mr. Lovejoy's dualism is common sense. In this attitude it finds its initial inspiration and its unfailing criterion for judgment of opposing theories. The "natural dualism" of Chapter I is simply a generalized version of the claims of common-sense knowing and the somewhat less natural representationism of the final statement is supposed to be its legitimate offspring. But common sense is notoriously an equivocal oracle on matters of philosophical import. It is one thing to hold that ordinary common-sense knowledge is, with respect to the objects with which it deals and the conditions under which it is relevant, as probably reliable as any transitive knowing can be and that any doctrine which contradicts it *within these limits* is very likely to be mistaken. It is quite another matter to insist that this attitude can be generalized without qualification until it provides the exclusive and exhaustive pattern into which all knowing of whatever sort must fit and by which it must be judged. The former view might properly be termed critical common sense, for it includes a recognition that the attitude in question has limits and must be understood philosophically in terms of them. The latter is dogmatic essentially, precisely because of its refusal to recognize such limitations and to come to terms with them. The dualism of dogmatic common sense has in recent years been known in this country as "critical realism" on the general assumption that a philosophy is critical when it takes a negative attitude toward the claims of some or all of its contemporaries. In philosophical tradition, however, the term "critical" has sometimes been used to designate those doctrines which are *self-critical* and thoroughly aware of

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their own limitations, and on this basis the critical realism now current is something of a misnomer. The dualism which, as it seems to me, Mr. Lovejoy does explicitly defend and which is in fact invalid, is precisely this dogmatism of common sense carried over into philosophy.

What does common sense actually tell us about the nature of knowledge? I should be inclined to agree with Mr. Lovejoy on the following points: (1) Ordinary experience is significant of objects which are permanent, common, and independent of the observers who claim to know them. Unless there were such independence there could hardly be a world of permanent objects at all, since our experiences considered in their own immediate being are obviously shifting and unreliable. Unless there were permanence the claims of practical activity to a dependable world which can be remembered and anticipated and thus made a basis for intelligent action would be illegitimate. And unless this world could be shared by cooperating individuals both as the common goal of action and the standard for communication and judgment much of our knowledge would be quite impossible. (2) While experience somehow reveals such objects, its "contents" considered in themselves and as particular events do not constitute them. Thus the "privacy" of any experience in any detail, or its dependence upon special conditions which preclude its permanent and independent existence would be sufficient to prove that it was not *this* sort of object or any literal part of it. (3) In spite of this distinction between the immediate being of experienced events and their representative function, these events do reveal or give us knowledge of "external objects" and this knowledge is indirect in the sense that the "data" upon which we base our conclusion are not the objects which our knowledge claims to be about. So far Mr. Lovejoy's thesis seems to me valid.

Now there are times, I think, when *The Revolt Against Dualism* claims no more than this. Certainly this is the view that Mr. Lovejoy represents himself as maintaining against all comers. Thus Mr. Russell is criticized for attempting to dispense with (1) and it is shown that his construction of an external world nominally without the aid of such objects actually presupposes them at every turn. So the new realists and their less forthright descendants, the "objective relativists," seem to deny (2), since they assert the objectivity of the data of experience, which appears to mean that they identify them with objects of the sort described. And it is not hard to show that such identification has paradoxical consequences. So, finally, those "idealists" and others who question the possibility of purely representative knowledge are answered with the assertion that some knowledge at least must be indirect. On this basis Mr. Lovejoy

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has all the best of the argument and it is difficult not to accept forthwith the plausibility of so eminently moderate and sensible a doctrine and to grow at least mildly mirthful over the extravagances of its incautious opponents. Yet when the time comes to state the case for this dualism constructively we are made increasingly aware that something very curious has happened to the common-sense doctrine with which we began and that matters are by no means as simple as they appeared. It is the nature of this transformation to which attention must now be directed.

Mr. Lovejoy asserts quite vehemently that the charge of "bifurcation" is wholly unjust as applied to traditional dualism and involves "a complete misconception" [1] of that doctrine. Yet there is a genuine and inescapable sense in which bifurcation constitutes the major premise of his own philosophy. For, once the situation involved in common-sense knowing is generalized without qualification, it becomes necessary to treat the objects to which such knowing is appropriately directed as the sole legitimate objects of knowledge, as the sole "reality." And since such objects are manifestly only a selection from the world as it appears it is then necessary to contend that what remains can not be an object of knowledge at all (since it does not function as such in this description of knowing) and that it is in fact a "mere appearance" of *the* reality beyond. Thus it is in the very midst of the analysis of natural realism that we learn, from the experience of perceiving a desk, that "*all* knowing is mediated through the presence 'before the mind'—as the traditional phrase goes—of entities which must be distinguished from an ulterior reality which is *the* true objective of knowledge." [2] I should not contend that Mr. Lovejoy "bifurcates reality" directly and as a matter of explicit principle by declaring that only transcendent self-contained physical objects can be real. But I do maintain that he is driven indirectly, but no less inevitably, to exactly this same position by his dogmatic insistence that all knowing whatever shall be explained on the pattern of our intercourse with common-sense objects and that, as a consequence, whatever is not this sort of an object of knowledge shall not be counted as knowable reality at all. Indeed, once this standpoint is taken, every one of the plausible and innocuous propositions outlined above takes on a new and sinister meaning. Thus (1), the assertion that common-sense objects are real, becomes the dogma that no other objects can be real and that whatever does not measure up to this standard of objectivity, i.e., is not this sort of an object, is a mere appearance of the privileged reality thus selected. This is exactly what recent philosophers have meant by the "bifurca-

[1] *The Revolt Against Dualism.* Chicago: Open Court Publishing Co., 1929, page 87. All further references are to this book.

[2] Page 16—my italics.

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tion of nature'' or of reality. (2) Subjectivism is the doctrine which results when events that perform a representative function in our knowledge of physical objects are identified simply with this function and thus become *mere* representations or ideas about something beyond themselves. That events which are private and causally dependent are *therefore* essentially ideas that represent external archetypes, that their difference in this respect from physical objects can be equated with a difference between objective reality and subjective appearance, is the unfortunate but quite indubitable outcome of such a position. (3) It may be conceded that some knowing is indirect and hence, in some sense, ''representative.'' But if it is further held that *all* knowing is indirect and that the representation involved is that of the ''reproduction'' in idea of the qualities possessed by real objects independently of their relations to the situation in which knowledge occurs we have a copy theory on our hands. And while it is relatively easy to defend the former position, the latter has considerably less to recommend it. Now when common sense becomes dogmatic, when its relative and conditional claims are taken as absolute and unqualified, it is precisely this transformation that is bound to occur. That it occurs in Mr. Lovejoy's own theory, and that its influence can be followed through every step of the argument from its plausible beginning in the views of plain men to its unfortunate conclusion in the intricacies of traditional epistemology is the thesis to be developed in detail.

It is as a protest against this type of dualism that the ''revolt'' of recent years is really comprehensible. A revolution in philosophy of sufficient scope and importance to be recognized even by its critics as the distinctive development of the last generation in this field is not plausibly explained by a mere desire for theoretical neatness or by an aversion to the accepted terminology of epistemology. Yet these are the only motives Mr. Lovejoy can assign to it. Rather is it the case here as elsewhere that absolutism is the parent of revolution, the absolutism of an exclusive tradition which has no answer but a barren negation to new and vital tendencies over which it claims jurisdiction, but to which its criteria are in fact inapplicable. There are likely to be extremists in the vanguard of any revolution, and the alternatives to the existing order first propounded are usually visionary and unanalysed. Such extravagances are the appropriate object for conservative criticism and Mr. Lovejoy as the Edmund Burke of this epistemological revolution makes most effective use of them. But a later and less embattled version of the struggle is likely to see the matter in a different light. If the existing tradition is in fact a barrier to progress and if the alternative proposed, however crude its initial statement, marks out the path

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along which thought can advance, the revolution has so far justified itself. And to this measure of vindication the revolt against dualism has already proved its claim.

Bifurcation. It is the thesis of this dualism that "it is never the true *cognoscendum* as an existent that is present to us as an actual experienced datum."[3] It is admitted that data, whose existence is given, are present to us. Hence it must be shown that data are never true *cognoscenda,* that they have not the properties requisite for an object of knowledge. Mr. Lovejoy has always supported his claim at this point by the argument that they are not "true parts of the physical world" and he has assumed that those who asserted the objectivity for knowledge of such data would deny this. Thus the monistic realist is called upon to show that "the visual percept (the datum) is identical with part of the perceived object, *which is to say* also, that it is a true part of the material world."[4] Unfortunately for his own case the monistic realist has too often undertaken to meet this challenge. But what has the physical status of the object known to do with the directness of our knowledge of it? Simply this, that if it can be shown that our knowledge of physical objects is indirect, and if only such objects are the proper objectives of our knowing, then it *is* possible to hold that all knowledge is indirect. But what makes Mr. Lovejoy believe that the non-physical status of the datum disqualifies it as an object of knowledge? The suspicion has grown that it is bifurcation in the literal sense which provides the unavowed but indispensable basis for this dualism.

Is it necessary for this dualism to hold that relative, non-physical events are unreal and thus bifurcate the world, not into physical and non-physical, which is mere empirical difference, but into real and apparent, which is metaphysical exclusion. Mr. Lovejoy denies it. "All that a dualistic realism need assume on this point is that 'what "really" exists' is independent of a *particular* relation, that it is not a function of the percipient or cognitive event. And this has hitherto been taken as the common assumption of all realism."[5] This is a characteristic instance of the basic ambiguity of his position. Does "what 'really' exists" mean *whatever* really exists, or does the statement mean simply that some things independent of this relation do really exist? It is the latter, surely, that is the common assumption of all realism. But it is quite irrelevant here. What the statement seems to mean and what it must mean if it is to justify the exclusion of experienced events from the class of true *cognoscenda* is that what exists independent of this relation is uniquely and exclusively real, that what is not independent of this relation

[3] Page 318.
[4] Page 61—my italics.
[5] Page 87.

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does not "really exist." In a later phase of his argument the author observes that it is a truism that "what exists 'relatively' nevertheless actually exists."[6] And there is no doubt that in his view data that are not independent of this particular relation do actually exist. Yet they are not real objects for knowledge at all. Hence he appears to hold that certain "actual existences" does not "really" exist, which was precisely the bifurcation in question.

Suppose, however, that we assume the contrary. That is, while agreeing with Mr. Lovejoy that data as such and in their immediate being are not physical objects, we may hold that they are real natural events, objective in the precise sense that they are the objects of true judgment and may be known as such without the intervention of any copy or representation whatever. This "objective relativism" regards such events as ultimate in the sense that whatever properties they possess under such conditions they do really possess. In knowing *them* there is no need for reference to a further external and standard object, since it is not about further objects that we are judging but about the events of experience. Such a view seems to Mr. Lovejoy to be very dangerous. For it, "Everything truly is all the things that it appears to any and all percipients (or concipients) to be, and no one preferentially 'objective' object or event, from which the appearances are distinguished, and with which they can be in thought compared, is provided."[7] As opposed to this, common sense and science have always held that "the sort of object knowledge aims at," "the cognoscendum," is "a sort of constant—in the sense that it is not a function of variable relations to knowers or to conditions of knowledge external to its own spatio-temporal region of existence."[8] Now this seems to me a very revealing statement. In the first place, the objective relativist does not hold that everything is what it appears to be, but rather that the data of experience are not primarily "appearances" at all. It is not as manifestations of something else, still less as beliefs or opinions about it, that such events are held to be ultimate, but as the unique, specific events that they are. To know *them* requires no further reference to a "preferentially objective" object unless we must always assume that immediate experience is a way of knowing about something other than itself, and is nothing else. There is no need to compare experience with something else if it is experience and not something else about which we are talking. Of course, if all our judgments were about experienced events, we should know much less than we do. But unless *some* of them were about precisely such experiences, not as "appearances" but as given and dependable facts,

[6] Page 148.
[7] Page 123.
[8] Page 131.

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we should know even less. Is it not plain that Mr. Lovejoy is insisting here on introducing the "constant" object of common sense into a situation where it is obviously inappropriate? To condemn experience simply because it is not "the sort of object knowledge aims at" and will not fit into that pattern is not only arbitrary but ruinous. Taken literally it leads to the conclusion that only the constant and independent features of events can be known at all, and that the changing and contingent is not an object of knowledge. In his earlier exposition of common-sense doctrine our author makes this revealing statement. "Men are normally led to it [epistemological dualism] simply because they have formed certain preconceptions as to what an object of knowledge ought to be, and then, comparing the characteristics of the thing directly presented in their experience with these preconceptions, have found that the two do not match."[9] And on this matter, as on others, Mr. Lovejoy stands with the plain man.

Subjectivism. But does the author really deny the reality of our knowledge of data? At times he speaks as if the issue were simply verbal, immediate experience ought not to be *called* knowledge, but it is a certain and adequate basis for knowledge. Yet his own statement reveals the impossibility of maintaining such a position on his own theory. "The epistemological dualist has always asserted with regard to all immediate appearances (data?) that they are, in one sense, immediate and absolute. About *their* characteristics, he has been accustomed to say, not only need there be no error; there *can* be, at the moment of their sensible appearance, no error—in so far as inference, introducing elements not sensibly present, can be excluded. He has regarded this sort of ultimacy as the very mark of the subjective in the epistemological sense. When immediate data are simply taken as ultimate—as not claiming to express a character of something beyond themselves which is not determined to be what it is by the percipient events or its specific conditions—they are *eo ipso* taken as "mere appearances," innocent of epistemic pretensions."[10] That all experienced events, except in so far as they reveal extrinsic objects, are "mere appearances" is precisely the subjectivism of which the dualist has so often been accused. It is not a question of the certainty of immediate experience, but of what we are certain about. If the objects of such experiencing are intrinsically mere appearances, then they are not an adequate basis for knowledge of any kind, since from appearance to reality there is no legitimate passage. If they are themselves realities on their own account, ultimate not as representations but as occurrences, then we have some basis, limited though it may be, for our claim to know

[9] Page 11.
[10] Page 127.

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what the world is like. To reduce their "epistemic pretensions" to a mere function of their representation of something else, to make them essentially representative ideas, is simply a piece of unwarranted dogmatism based on an exclusive preoccupation with common-sense objects and the function of experience with respect to them. Mr. Lovejoy has ranged the heights and depths of contemporary epistemology in the attempt to discover what his critics might possibly mean by denying the "subjectivity" of experience while admitting its causal relativity to percipients. And lo, like the proverbial bluebird, the elusive meaning was waiting for him at home all the while. What they sometimes meant to deny was the theory that the data of experience are as such mere appearances, that their *sole* epistemic significance is to be found in their representative function. In other words they meant to deny the "hypothesis of representative ideas" in precisely the form in which, as we now learn, the epistemological dualist has "always asserted" its validity.

It is now possible to understand the true inwardness of this criticism of "objective relativism" and its inevitable consequence. From the assertion that the events of which we are directly aware are ultimate, irreducible occurrences which are not mere appearances of anything else Mr. Lovejoy draws the conclusion that his critics must hold that "everything truly is all the things that it appears to any and all percipients (or concipients) to be." Thus my confession of faith that my liking for cucumbers is an ultimate fact "which no further information can discredit" is supposed to involve the consequence that, since this "appearance" is ultimate, my liking for cucumbers "ultimately" is whatever it *appears* to any "percipient (or concipient)" to be. This unfortunate view is corrected by the perfectly just observation that in this case my liking for cucumbers is itself "set up as an absolute" in the sense that it is a common object to which all judgments *about it* refer, and to which, if true, they must conform, quite independently of the particular states of mind of the persons who make them. But that is precisely what I had intended to show. That in *this* sense the data of direct experience themselves, and not merely preferentially objective objects, can be judged about on their merits and as facts, *not as appearances,* is just what the objectivity of objective relativism intends to maintain. For my liking for cucumbers is clearly not, on Mr. Lovejoy's theory, a "true part of the physical world" and hence not "the sort of object knowledge aims at." It *is* directly experienced, and *is* as an object of knowledge, "as not claiming to express a character of something beyond itself," not at all "innocent of epistemic pretensions." If such a private, causally dependent occurrence can set up and, with Mr. Lovejoy's assistance, make good

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its claim to be "a sort of absolute" as an objective and standard for valid knowledge, then what the epistemological dualist has "always asserted" about the events of experience is quite obviously not the truth about them. Of course, *if* my liking for cucumbers were taken as an appearance of something else, as an indication, for example, of the ultimate worth of this estimable vegetable, it would not be the ultimate fact about this further matter. But it is ultimate and genuinely real in its own kind, and the assumption that it must be understood *merely* in some representative capacity is Mr. Lovejoy's and not ours. It is just such subjectivism which, having first transformed the solid facts of our direct contact with events into claims on an ungiven reality, must then be responsible for the conclusion that the only ultimacy which such contact can possibly claim is one which it can not possibly justify. For better or worse our knowledge of the external world *is* founded on what our own experience reveals. I have ventured to speak of such experience as a rock on which we may build. For Mr. Lovejoy, on the contrary, a view which pins its faith merely in a revelation of "the character which reality happens to take on in that particular perspective and from that standpoint" amounts, if rigorously interpreted, to "a complete denial of the possibility of knowledge."[11] Now, if any of us held that experience was incapable of revealing anything but such happenings, we should indeed have limited unduly the scope of knowledge. No such view, so far as I know, is seriously defended at the present time. But unless the revelation of "the characters which reality happens to take on" in particular perspectives is *some* knowledge *of reality,* which Mr. Lovejoy plainly denies when he says that if we were limited to it no knowledge would be possible, then experience which does reveal precisely those characters which reality happens to take on under those conditions, would be no foundation for any further knowledge about the world. What experience reveals depends upon what it is, and unless *this* is solid fact the structure raised upon it, whether rigorously interpreted or not, can hardly pass for genuine knowledge.

The Copy Theory of Knowledge.—"The dualist" appears to assume that those who disagree with his position intend to deny the legitimacy of indirect knowledge. On the contrary they are often intent on justifying its validity. The distinctive mark of "the dualist" is not his devotion to such knowledge, but the fact that it rests upon a denial of the only possible assumptions on which it could be justified. There is in general no great mystery about the fact that we can know more about the world than is literally and spatio-temporally presented to us. For objects can be known in their rela-

[11] Page 150.

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tions and where the specific context of experience involves antecedent or environing conditions the function of such conditions in the present situation is a real, though limited, revelation of their nature. But this presupposes (*a*) that the given situation is itself literal and knowledge fact and can be understood as such, and (*b*) that the relations through which ulterior objects enter the situation are relevant to their nature and thus fitted to convey some valid information as to what they really are. A copy theory of knowledge is inconsistent with both of these presuppositions and its continued assertion of the validity of indirect knowledge after denying its indispensable basis is a somewhat dubious solution of its problems.

Consider (*a*). According to Mr. Lovejoy, knowing occurs only when real objects "get reported" by "partial or symbolic reproduction in the awareness of a cognitive organism which is at the time capable of thinking of some general scheme or order in which existences have separate and mutually exclusive situations, and of referring attributes to the data of which it is directly aware to external situations in that order."[12] A datum which in this sense reproduces the character of the object is "epistemologically objective" and save as objective in this sense the datum is, as we have seen, a mere appearance devoid of epistemic pretensions. This merely subjective and epistemologically irrelevant character belongs to any experienced event whenever "it is not assumed to possess, *and therefore to be capable of exhibiting,* any 'intrinsic' quality of relation which the intended object of knowledge has within its own spatio-temporal limits."[13] Thus we learn that a datum is material for knowledge only when it possesses and *therefore* can exhibit the quality of its object. It is material as a duplicate or copy, and only those properties of objects can be revealed which the datum itself possesses. But this condition, though essential, is not sufficient. It is not enough that the datum should resemble its object; we must also know that this resemblance exists.[14] And this is quite impossible. For unless the object can be known to have properties different from those of the datum, in particular, to be a real object which such data resemble, there is no knowledge *of it.* And data, which in this view never possess the property of being real objects of knowledge, can not manifest such a character in *their* objects. The resemblance of data to each other will not suffice, for data are never "the sort of object knowledge aims at." The resemblance of real objects to data is not available since it is never a possession of the datum and *therefore not* capable of exhibiting the reality to which it refers. The criticism is fundamental. In sum it amounts to the assertion that a

[12] Page 316.
[13] Page 98—my italics.
[14] Page 321.

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datum which is relevant to knowledge *merely* as a representation can not be known to be a representation, for the relation in respect of which it guarantees knowledge is precisely the one which it can not be known to possess. This does not mean that indirect knowledge is impossible. There are many things that we can know about data that furnish some information as to their origin and conditions. But this is precisely because they are not known as mere appearances of something else whose characters they reproduce. The discovery of ashes is some reason for supposing that a fire has occurred. But ashes do not possess any of the essential properties of fire, and whether the idea of ashes resembles real ashes we probably never shall know. For the object is known by attributing to it the characters of data. And it is known when we know that the object, as distinct from the datum, actually has the properties of the datum. But to be an object different from any possible datum and possessing similar properties is not in the nature of any datum whatever. Hence data never in this respect duplicate their objects. And since *all* knowledge is held to require such duplication, valid knowledge can never be known to occur. And this is inevitable. For on this theory the only properties in the experienced world which are relevant to knowledge, are epistemologically objective, require validation in terms of a further relation which the whole experienced and experienceable world essentially lacks and therefore can not represent.

And now (*b*). There are, of course, *other* relations, present in the world as we know it, and sometimes useful in a practical way for testing ideas, but on Mr. Lovejoy's theory they are quite irrelevant. For in the first place they are not relations of resemblance and in the second place they do not tell us what the object is within its own spatio-temporal limits and independent of the "intervenient conditions" between itself and organism. Thus he derides the view that objects are known essentially in their relations by observing that "the qualities of an effect are not *eo ipso* qualities of its cause" and that a hunter in killing a rabbit does not thereby kill himself.[15] The comment is revealing. If we know objects only when data duplicate their intrinsic properties, then the dead rabbit tells us nothing whatever about the hunter, since we should be quite wrong in inferring that the hunter resembles the rabbit in being dead. But this copy theory is the dualist's assumption, not ours. I should have supposed that the conditions of the rabbit's demise might have revealed the hunter as a good marksman, a poor sportsman, or something of the sort. The alternative is hardly inviting. Surely being a hunter of rabbits is an epistemologically objective property and not

[15] Page 88.

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a mere appearance devoid of epistemic pretensions. Yet it must be left for Mr. Lovejoy and the plain man to determine how a man can hunt rabbits within his own spatio-temporal limits.

The same conclusions will obviously follow with respect to any relations whatever other than that of resemblance. Only that information would be relevant which told us what intrinsic characters the object possessed independently of the interactions in experience which constitute our evidence as to its nature. Whatever manifestations of the relations of events are found to depend upon "processes spatially and temporally intervenient between the object and the perception" are set down as "*therefore* not attributable to the former."[16] Now it is clear that all spatio-temporal separation whatever will involve some such intervention and so far remove us from the exclusive object of all valid knowing. Mr. Lovejoy is thus speaking quite literally when he says that "Man may be described biologically as an animal whose habitual and paradoxical employment is the endeavor to reach outside his skin."[17] Where the limits of relevant evidence must be identified with the spatial outlines of the object to be known it could hardly be otherwise. The consequence is faced unflinchingly. "No judgment concerning a particular existent—other than the immediate and transient private datum, about which no act of judgment is necessary—can conceivably attain experimental verification in any literal sense; for the existent complex of ideas which is the content of the judgment can never, by any finite and temporal knower, be brought into the same locus with the existent to which it refers."[18] It seems to me that if this be true the habitual employment of man is not merely paradoxical but profoundly futile.

And thus, as it appears to me, the unqualified generalization of the attitude of common-sense dualism has ended by casting the very gravest doubts on the validity of common-sense knowledge itself or, indeed, of any knowledge whatever. For common sense itself presupposes the validity of ways of knowing not adequately understandable on its own terms, and in discrediting the ultimacy of experienced events and the relevance of the relations discoverable in and through them, it has undermined its own foundations and is forced in the end to appeal to an unplausible and quite unverifiable resemblance between experience and ulterior reality to reintroduce into the knowledge situation that essential relevance of experience to reality which its own absolute pretensions had first of all eliminated. And thus it is with any philosophical absolutism. Its initial premises, eminently plausible within their own limits, can not

[16] Page 21—my italics.
[17] Page 12.
[18] Page 318.

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be stretched to cover the whole complexity of nature. Hence the bifurcation of reality in which whatever is empirically irrelevant to its own standpoint becomes metaphysically unreal. And, hence finally the discovery that this "unreality" is essential to its own reality and must be smuggled back deviously and illegitimately if the "reality" itself is to survive. It is with this process of smuggling back that the second part of this paper is concerned.[19]

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BOOK REVIEWS

Psychologies of 1930. CARL MURCHISON, editor. Worcester: Clark University Press. 1930. xix + 497 pp.

The present discussion is not intended as a review of *Psychologies of 1930.* A review of that volume would necessitate, among other things, an attempt to do justice to the subtlety of thought and the great clarity and conciseness of exposition which make the twenty-five chapters rather fascinating reading. The object here is to take up a challenge that is implied in the volume as a whole. This is the challenge as to the *logic* of the position of present-day psychology. The volume is itself loud with disputes that are at bottom logical, and hence no apology is needed for considering it from a logical rather than from a psychological angle. It might even be argued that this is the only kind of consideration that the volume calls for inasmuch as it adds but little, so far as psychological matter is concerned, to the *Psychologies of 1925.* Whatever interest it possesses in respect of novelty of content seems due, in the main, rather to the inclusion of new writers than to any desire on the part of the contributors of 1925 to unburden themselves of new knowledge. At all events the question before us now may be formulated thus: supposing that a reader, who is enough of a psychologist to follow intelligently the theories and the arguments of the different schools and also to teach the subject with reasonable success, decided to view the situation, as revealed by the present volume, in the light of a straightforward logic, to what conclusion would he be driven with respect to the claims of psychology to rank as a science? It is submitted here that his conclusion would be to the effect that there is no science of psychology, nor are there sciences of that name. The plurality provided for in the title of the volume does not offer a way out. Let us hasten to add that this does not mean what enemies will promptly take it to mean, that psychology is a false or pseudo science on a par with alchemy and astrology. As will be pointed out, such a com-

[19] To be concluded in next issue, No. 3.

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parison is quite erroneous. Nor does it mean that the pursuit which we call psychology does not possess great significance for modern culture. The question as to what precisely that significance is will be considered later. Here we are concerned to point out certain symptoms, well marked in the volume under consideration, which would seem to indicate that those psychologists who would number psychology with the true sciences, however modest the place they would claim for it, are the victims of a rather stubborn, though possibly beneficial, delusion.

A significant symptom is the fact already referred to, the extent to which psychologists are vexed over logical and methodological issues. Psychology is "logic-conscious" in a sense and to a degree that has no parallel in a genuine science in its earlier stages. True science does not begin thus. It sets itself to study certain phenomena—heat, planetary movement, geologic structure and so forth—and its consistent criterion of success is predictability and control. That criterion leaves it in no doubt as to the measure of success achieved. Having established itself on a firm basis of positive achievement, it may then become interested in its own logical implications and foundations. The approach of the psychologist seems the reverse of this. He is preoccupied at the outset with a precocious interest in the nature of his tools and not free from misgiving as to their adequacy. The result is that, while wisdom of a kind may come, psychological knowledge lingers. Numerous examples might be cited from the volume under consideration, but two will suffice: "The strongest element in the system here presented seems to me *the principle of incompatible movements.* Every theory needs most of all a way of demonstrating the *impossibility* of certain occurrences. There is only one surely impossible phenomenon in the universe, if we except merely logical inconsistencies, and that is the movement of a body in opposite directions at the same time with reference to the same points. If we can base our explanation of psychological phenomena on this principle, we have given psychology a sure foundation and placed it on a par with the physical sciences" (Washburn);[1] and, again, Knight Dunlap tells us that the scientific psychologist "sees no profit in assumptions which do not lead to experimental test; and materialistic, supernatural, deterministic and libertarian assumptions are in this category."[2] Both statements invite controversy other than psychological, and the closing part of the second statement in particular might arouse enough of it to keep the psychologists fully occupied.

The inevitable result is, of course, in the words of Spearman, "this deadly canker of psychology, the splitting up into discordant

[1] *Psychologies of 1930*, p. 93.
[2] *Ibid.*, p. 312.

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schools."[3] The customary defence reaction of the psychologist to this awkward situation is interesting. We find it voiced by Woodworth, who talks of "this curious cleavage into schools, a phenomenon almost peculiar to psychology among the sciences of the day *and probably to be regarded as a symptom of adolescence.*"[4] The plea of adolescence seems an unfortunate one. The cleavage into schools, arising out of a searching scrutiny of implications and procedure, is a phenomenon of maturity, as in the case of physics, or at least of very substantial growth, as in the case of biology. Psychology is acting strangely in displaying the characteristics of maturity when there is no record that it has ever been young.

It is likewise inevitable that this unhealthy self-consciousness on the part of psychology should lead to argumentation that bears all the marks of special pleading. Of this, too, several examples could be cited but one will serve. MacDougall says: "Of all forms of psychology the hormic is the only one that can give to philosophy the psychological basis essential to it . . . a glance at the history of philosophy shows that the hormic psychology is the only one with which philosophy can work, the only one on which it can establish a scale of values, that does not break to pieces under the slightest examination."[5] This seems a curious *husteron proteron.* Surely it is the rôle of philosophy, not to indicate "needs" to psychology or to any science, but to furnish syntheses that will cope with whatever the sciences see fit to offer.

A second indication of the non-scientific status of psychology is to be found in the psychologist's attitude to earlier contributions. He is over-concerned to show the error of previous viewpoints and findings and over-protests the novelty of his own. Genuine science finds no occasion for such protest inasmuch as it simply ignores what it would consider the errors of the past. If it takes account of them, it does so only as curiosities of its history. The psychologist, however, seems to find the disowning of the past a necessary if not a main part of his task; and more often than not his success is dubious. Brett's historical contribution to our volume is generally of great interest from this point of view. This writer, for example, characterizes the "conditioned reflex" psychology as "the latest form of associationism" and as "the most significant way in which the central positions of associationism are active to-day."[6] True, he goes on to say that "it may be necessary to add that the theory has been transfigured and that nothing now remains of traditional associationism, but the transfiguration has been a gradual change of the pic-

[3] *Ibid.*, p. 363.
[4] *Ibid.*, p. 327 (italics ours).
[5] *Op. cit.*, pp. 28–29.
[6] *Op. cit.*, p. 45.

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ture in harmony with the total change of outlook produced, no less gradually, by the evolution of the physiological and biological sciences.''[7] At the same time he reminds us of the great elasticity of the term ''idea'' as used by the older psychologists, notably by Locke, and refers, moreover, to one of Locke's examples of association of ''ideas,'' an example which, as an illustration of the process of conditioning,'' is amusingly felicitous. Association of ideas, in other words, was not limited to the setting up of intellectual connections on the conscious level. Hence Locke and the Associationists might reasonably claim that they had adumbrated a sound programme of *descriptive* psychology and that the ''conditioned reflex'' psychology is nothing more than an experimental and mainly physiological investigation of the association of ideas. The present writer feels that this claim would be anathema to the conditioned-reflexists and that their belief is that they have effected an innovation of much more radical significance than such a claim would imply.

The indifference of genuine science to the false scents of the past carries an implication of the first significance for psychologists. It exposes what seems to be a very general fallacy and one which is freely expressed or implied throughout the pages of our volume. This is the notion that the different schools and theories, even though none of them represents true psychological science as it will one day be, serve nevertheless to amass valuable knowledge which the real science, when it comes, will find ready to its hands as so much factual dowry with which to begin its career. Woodworth, to take one example, tells us that ''the presumption is that all sincere and able investigators are doing something worthy of being included in the system.''[8] Psychologists who lay this unction to their souls would do well to consider whether such is the way of science. The fact would seem to be that science, once it has struck the right path, shows no disposition to look back, not even when looking back might seem a means of speeding its progress. The alchemists made considerable discoveries, but the science of chemistry took no serious account of their findings: it simply rediscovered them in their proper setting. So, too, with astrology and astronomy, with pre-scientific and scientific medicine and, it is to be feared, with the psychology of the present and that which will finally take its place. The figure that perhaps best illustrates the situation is that of a large number of builders, each busy on a small portion of the building, but none with a clear picture of what the final structure will be like. The presumption is that the architect, were he to appear on the scene, would find it necessary to begin wholly *de novo*.

[7] *Op. cit.*, p. 46.
[8] *Op. cit.*, p. 327.

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This brings us to the next tell-tale symptom of the condition of psychology. Schools and theories are isolated from one another to a degree that suggests no real substratum of scientific connection. This may seem an unfair charge, and the most plausible line of answer to it will be considered presently. The common designation of "psychologist" does not of itself prove anything. Indeed even this is repudiated by Hunter. If the different schools were only so many facets of a common science, each would show concern to absorb into its own body results arrived at by the others. In some degree indeed such reciprocity exists, but it is not the prevailing practice. The general tendency is well illustrated in the following criticism of Gestalt psychology: "Here we have able investigators—Helmholtz, Sherrington, Pavlov, Thorndike, to mention just a few—and we have findings repeatedly verified and bearing all the earmarks of scientific results. Those results may be in need of reinterpretation, but as results they certainly stand. But the Gestalt psychologists give the impression of believing that this whole analytic style of investigation is fundamentally unsound."[9] The same line of criticism might be pertinently directed against behaviorism and other schools. The difficulty seems traceable at bottom to two reasons, both strong against the possibility of any effective give-and-take: the schools are largely concerned to explain really different phenomena and their standards of what constitutes explanation are at variance. Consider, for example, the following statements, each of which is crucial for the brand of psychology with which it is associated:

> Any healthy human brain is potentially equal to any other healthy human brain so far as mental processes are concerned. . . . The hypothesis, in short, assigns the source and basis of mental differences (and most physical differences as well) to the periphery, instead of to the brain [Knight Dunlap].[10]
>
> It is therefore evident that the determinants of response specificity must reside in the nerve centers, since it is here that particular types of linkage between environmental influences and motor expression are established [Troland].[11]
>
> The concept of the environment has no place in psychology [Bentley].[12]

Reflection on the full implications of these statements will reveal, if we mistake not, a degree of incompatibility of viewpoint and of interpretation generally that indicates separation as the only way.

One line of defensive argument seems to the present writer to be as dubious as it is common. It is the line adopted in our volume by no less an authority than Dewey himself. Says Dewey: "I am a firm believer in a variety of points of approach and diversity of

[9] *Op. cit.*, Woodworth, pp. 333–334.
[10] *Op. cit.*, pp. 314–316.
[11] *Op. cit.*, p. 463.
[12] *Op. cit.*, p. 102.

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investigations, especially in a subject as new as psychology is. To a considerable extent, the existence of different schools is at present an asset rather than a liability, for psychology will ultimately be whatever it is made to be by investigators in the field. To a certain extent, a variety of points of view serves the purpose that is met in all the sciences by the principle of multiple hypotheses. While there is immediate confusion, it may turn out that the variety will, in the end, secure a greater fullness of exploration than would otherwise have been the case.''[13] Reasons have already been suggested for doubting the literal accuracy of the statement that ''psychology will ultimately be whatever it is made to be by investigators in the field.'' Here our query concerns the phrase ''multiple hypotheses.'' Can any legitimate comparison be made between the variety of psychological schools and the principle of multiple hypotheses in the sciences? Surely hypothesis, as also variety of hypothesis, is something that occurs *within* a science that actually exists. Hypothesis belongs, to use the phraseology of Woodworth, to the superstructure and not to the foundations of science. Hence the ''multiple hypotheses'' plea would seem to amount to a subtle begging of the question at issue. Admitting that the variety of points of view will yield the greater fullness of exploration that Dewey hopes from it, it is well to recognize that the variety means, not fertility of hypothesis, but a fumbling for solid scientific foothold.

Boring's contribution, under the title of ''Psychology for Eclectics,'' represents the most significant line of answer to the considerations advanced in the preceding paragraphs. It is in effect an attempt to show the possibility of an eclectic viewpoint such as will yield a solid body of genuine psychological science. As Boring puts it, the eclectics ''do not attempt to deduce the chapters and data of psychology from some first principles, but they endeavor to induce a definition of psychology, when they engage in this undertaking at all, from the materials given them as psychology. Such an attitude does not mean that anything that pretends to be psychology must be accepted, on its own representations, into the body psychological. . . . Even the eclectic must choose, and in this case he chooses what has proved its worth. . . . There is no name for this psychology that is thus defined a posteriori by induction from history, nor do I wish to coin one. My point is that psychology in 1930 exists.''[14] How far does such eclecticism, which represents the approach of perhaps the majority of teachers, carry us?

It is submitted here that, so far as concerns the teaching of the subject, eclecticism would seem the proper approach, at all events for the elementary stages. From the standpoint of the advancement

[13] *Op. cit.*, p. 409.
[14] *Op. cit.*, p. 116.

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of the subject, the matter is otherwise. Eclecticism, as a hybrid psychology, seems fated to sterility. In the last analysis, its procedure implies the false Baconian faith that a vast collocation of facts, properly sifted and arranged, will yield truth. Koffka, referring to the psychology of space perception, says: "much as this relative neglect of our subject is to be deplored, it is the manifestation of a fundamental and scientific tendency; mere collection of facts will not establish a science. As soon as the facts lose their theoretical setting they lose their scientific interest."[15] This platitude (as one might now call it) is insisted on here because there is a sense in which psychologists are liable to forget it. It is not contended, of course, that the eclectic or any other psychological free-lance can not fruitfully tackle a specific problem, arming himself with a specific hypothesis. Such a contention would be foolish. What is urged is that, when it is a question of making a permanent contribution, the "theoretical setting" above referred to means more than just a hypothesis; it means a hypothesis that naturally emerges out of an already established and growing body of knowledge. Here eclecticism will fail, for such a living body of knowledge will not be constructed by laborious piecing together of parts torn out of their own original setting. Psychology in 1930 may exist, as Boring claims; but its existence is not of the same order as that of the physical sciences even in their incipient stages.

The entire argument of the present article is, of course, directed against the claim of psychology to rank with the physical sciences. Why the physical sciences? The answer is that this is the claim that is actually advanced. It is permissible, of course, and indeed very common, to broaden "science" and "scientific" to denote all study that is marked by freedom from conscious bias. Psychology, as will be shown presently, has an important scientific mission in this larger sense of the term. But the reader of *Psychologies of 1930* will be left in no doubt that the desire of the psychologist's heart is to be received or at least tolerated in the exclusive circle of the physical scientists. For reasons which are felt rather than seen, the latter persist in their seemingly perverse view that their psychological friend does not yet belong.

It is not the purpose of the present article to belittle the importance of psychological study. It seeks rather to define its status and functions. If we define psychology as a "pursuit" rather than as a science, it would seem that two definite objects can be assigned to it. The first is the object which, according to our argument, is now implicit in the work of the psychological schools, viz., the search for a real scientific foothold. The exact researches of the laboratory

[15] *Op. cit.*, p. 161.

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find their justification here. The same object justifies and, indeed, renders inevitable the appearance of rival schools. Hence, as against Woodworth, we would say that schools such as Behaviorism, Gestalt, and Hormic psychology are entitled to claim that they pertain to the foundation, not to the superstructure of psychology. Viewed in this light, the schools of psychology are at once seen to be on a footing quite different from that of cults such as alchemy and astrology. The presuppositions of the latter were perfectly definite and their aims admitted of clear and concrete formulation. Proof that their presuppositions were ill-founded and their aims illusory relegated them to the limbo as false sciences. Psychology is not to be thus dismissed inasmuch as its presuppositions, aims, and procedure are all at the exploratory stage. To clear the psychological atmosphere, then, there must be frank recognition of two things: first, that the schools *are* merely tentative, exploratory efforts and that (speaking, of course, within what ought to be obvious limits) no *a priori* considerations of whatsoever kind can commend one school as against another; second, that the school that hits the trail of genuine psychological science will stand in no need of special pleading or emotionally tinged argument. Acrimonious dispute will be silenced, at any rate until the science is well advanced. We need not speculate here on the nature of that science. Spearman's approach, for example, may or may not turn out to mean a Copernican revolution—we are not concerned here with psychological evaluation. Troland's contribution, entitled "Motivational Psychology,"[16] if we suppose its statements to rank as knowledge and not as speculation, is perhaps suggestive of how the science would read. Of one thing, however, we may be certain: the science will explain, and will at once be recognized as explaining, the actual and familiar phenomena, the processes now approximately referred to as sensation, perception, imagination, judgment; and it will explain also the action of those grey masses which, whatever refining theorists may say, are known to be intimately concerned. It will explain these things manifestly, as physics explains heat, and chemistry water.

The second rôle to be assigned to psychology is frankly practical. This is the study of quite specific problems and situations with a single view to control. Education and medicine exemplify fields where this function must continue to be performed. Take, for example, the case of "pathological lying." The psychologist's function is to probe as deeply as he can into inheritance and environmental influence with a view to the understanding and control of this particular condition. The point is that this part of psychologi-

[16] *Op. cit.*, ch. 25. Why confuse counsel (in a sphere where it is already sadly darkened) by this use of the term "motivational"?

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cal study is strictly *ad hoc:* it is limited to its specific problem, it is subject to no standard except that implied in its being "scientific" in the broad sense of being free from bias or prejudice (the sense in which economics, ethics, and even philosophy may be said to be scientific) and, finally, its intent is practical. The experience of the race has already accumulated a certain amount of serviceable knowledge. One might conceive the function of the psychologist here as that of enormously accelerating the accumulation of such knowledge by direct and systematic attack on the problems. Like Freud, of course, he may find that his specific practical investigations suggest a comprehensive theory of general psychological science, though perhaps the case of Freud might be used to point the moral that the less he troubles himself with the more ambitious project the better.

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Hegel's Science of Logic. Translated by W. H. JOHNSTON and L. G. STRUTHERS. Two Volumes. New York: The Macmillan Company. 1929. Pp. 404; pp. 486.

Hegel's Logic of World and Idea. Translated by H. S. MACRAN. Oxford: At the Clarendon Press. 1929. Pp. 215.

We have here the first English translation of the whole of Hegel's Larger Logic, by Messrs. Johnston and Struthers, and by Professor Macran, the last two-thirds of the final third of the same monumental work (the translation of the first section of the Subjective Logic Professor Macran published in 1912, under the title *Hegel's Doctrine of Formal Logic*). Although both translations are masterly, the one by Johnston and Struthers will be considered by some as superior in excellence, owing to the fact that it adheres closely to the terminology used by McTaggart in his *Commentary on Hegel's Logic.* Indeed, this translation was begun, at the suggestion of McTaggart, by the late Miss Constance Jones. The first fifty pages of the text, the translators tell us in their Preface, "represent in a finished state the work which she had roughly drafted before her death in 1922." The influence of McTaggart is evident throughout. The translators were his pupils at Trinity College in Cambridge. In point of interpretation—and a translation of Hegel often *is* interpretation—McTaggart's *Commentary* was their chief guide, so much so that they felt themselves "absolved from the task of supplying explanatory notes or appendices," on the ground that they "could not hope to excel or usefully to supplement the work of McTaggart." For this reason, Professor Macran's translation will be preferred by those who take issue with McTaggart's interpretation. In Professor Macran's version we have often

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a more independent rendering of obscure but crucial passages, a rendering, we feel, not of McTaggart's Hegel, but of Hegel himself. Both translations, however, when taken together, provide us with a remarkably faithful reproduction of Hegel's recondite thought.

Those who are unable to read Hegel's German—and the German of Hegel is peculiarly his own—need no longer confine their attention to the "lesser" logic of the *Encyclopaedia* in Wallace's admirable translation. Exclusive study of it, even when supplemented by Wallace's *Prolegomena,* will hardly disclose the full meaning of Hegel's categories. The "lesser" logic is too brief to serve as a basis for an adequate understanding of Hegel's radical departure from the old ways of thinking in which, as James puts it, "since Aristotle, all Europe had been brought up." Much of the criticism of Hegel in Britain and America during the past few decades may be traced, not only to an attitude towards Hegel initially unsympathetic, but to an inaccurate knowledge of the relevant and authentic texts. Knowledge of Hegel through the logic of his *Encyclopaedia* is knowledge of him through an abbreviated and truncated medium. The relation between the two logics—the "smaller" and the "greater"—constitutes a special problem for the student of Hegel; there is in McTaggart's *Commentary* an exact account of the relation between them. Whatever be our opinion of McTaggart's account, we must partially agree with Johnston and Struthers when they say that "a need has often been felt for an English version of the earlier, fuller, and more authoritative Logic, the corner-stone of the Hegelian system, upon which estimates of Hegel must always ultimately be based."

Prior to "ultimate estimates" of Hegel one must have, of course, an authentic Hegel to estimate. But is the authentic Hegel present in the Larger Logic alone? The question is not an idle one. The *Phenomenology of Mind,* now available in English through J. B. Baillie's translation, presents a difficult problem with respect to the authentic Hegel which interpreters are disposed unduly to neglect. Here is a substantial work, in volume and scope as great as the Logic itself, antedating the latter by only a few years, which has never received the same degree of critical attention and estimate as have the other contributions of Hegel. Hegel himself accorded to the Phenomenology a high place. Until the year of his death, when he was engaged in preparing a second edition of this work, he regarded the Phenomenology as the "first part" of the system, the Logic being the "first sequel" to it. In the Introduction to the Logic he explicitly refers to the Phenomenology as containing the "deduction" of the "concept of science," a concept, he tells us, "which needs here [in the Logic] no justification, having already

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received its justification in that place [in the Phenomenology]." We have Hegel's unequivocal declaration that the Phenomenology embodies a deduction "assumed" in the Logic. And yet many an interpreter approaches a study and achieves an estimate of the Hegelian system as if the Logic were actually its only "corner-stone." And some there are who even speak of the Logic as the "Bible of Hegelianism."

Some sort of "higher criticism" is here most urgently needed. To understand the authentic Hegel one must first of all examine with the most scrupulous care the "deduction" of the Phenomenology "assumed" in the Logic; and this is a work which still remains to be done. If the Logic presupposes the Phenomenology, both temporally and logically, what justification is there for speaking of the Logic as the "corner-stone" of the Hegelian system? If there is such a "corner-stone," it is obviously the Phenomenology, and no other work of Hegel's, which has a title to this appellation. A minute and critical study of this neglected treatise—neglected in comparison with the extensive labors spent by scholars on the Logic—raises a grave doubt whether in the so-called "Bible of Hegelianism" we really have the authentic Hegel, whether we are not confronted by a Hegel who chose to reveal himself in two bibles, possibly discordant, one represented by the Phenomenology and the other by the Logic. What positively clamors for detailed and systematic discussion is the relation between these two great works.

The study of such a relation would be less imperative if the Phenomenology could be said to represent the "early," and the Logic the "mature," Hegel. Earlier than the Logic the Phenomenology certainly is, but is it less mature? Can we designate the Phenomenology, as does the otherwise discerning reviewer of our philosopher in *The Times Literary Supplement* (London, July 4, 1929), as "that work of Hegel's comparatively fiery youth"? In the light of the relevant dates, such a designation becomes more or less absurd. The Phenomenology was published in 1807, when Hegel was thirty-seven years old; the Logic was written five years later, when he was at Nürnberg in 1812. A man at thirty-seven is not normally in his "fiery youth"; but assuming the youthfulness of a book written at that age, a work composed only five years later can hardly be contrasted with it as representing full-fledged maturity. If the Phenomenology is youthful, the Logic is only a little less so. The very chronological proximity of these two equally ripe and equally authoritative expressions of Hegel's philosophical insight constitutes an additional reason why the problem of the relation between them should be neither ignored nor neglected.

Fortunately, the British and American student is now in pos-

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session of the pertinent texts for the investigation of this crucial problem. For twenty years he has had the English version of the Phenomenology, a version by no means perfect, but satisfactory and useful. And now he has, for the first time, most carefully rendered the whole of the Larger Logic in one form, and the last third of it in another. All three translators deserve the highest praise for the superb performance of a hard task. Professor Macran has written an introduction to his translation, a readable essay on "Idealism, Limited and Absolute," in which he sets forth in too complacent a manner extravagant claims for the truth of Hegelianism, quite unexceptionable from the point of view of the confirmed disciple. The essay will be applauded by Professor Macran's fellow-Hegelians, but will only amuse or irritate those not of that ilk. The late Viscount Haldane's Introductory Preface to the translation by Johnston and Struthers is couched in more moderate terms. While convinced that "the greatness of Hegel's real contribution to the history of thought seems . . . to remain intact," Lord Haldane's plea is merely for a sympathetic understanding of Hegel, on the ground that it is "not safe to neglect" a philosophic investigation "so thorough" and one which "is carried into detail with such care and illuminating illustrations." One need not be a follower of Hegel to support Lord Haldane's plea. The Table of the Categories and the Glossaries, prepared by the joint translators, add greatly to the value of their work.

J. Loewenberg.

University of California.

Sinism: A Study of the Evolution of the Chinese World View. Herrlee Glessner Creel. Chicago: The Open Court Publishing Co. 1929. Pp. vii + 127.

At the time that Greek thought was at its height there was developing in a center of civilization separate from the rest of the world a set of philosophies quite as interesting and as virile as those of Greece. For a period of more than five centuries, China had a brilliant intellectual development. While China has had no Plato or Aristotle, nevertheless the ancient Chinese philosophers compare very favorably with any other Greek thinkers. To speak of only one school, Confucius was quite as great as Zeno and vastly more influential; Mencius was the equal of Cleanthes; and Hsüntze was much greater than Chrysippus. There were also a number of rival schools—Laotze's *Canon of Reason and Virtue* has been said to be the *vade mecum* of German students to-day. The interrelations and mutual criticisms of these schools make a fascinating study in the development of philosophy. Unfortunately there have been but few

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students who have had an insight into the nature of philosophy and at the same time have mastered the difficult Chinese language. The older sinologists were chiefly missionaries who were more interested in reading Christian ideas into Chinese texts than in the study of philosophy for its own sake. In addition to the language, the difficulties of textual and historical criticism are numerous. Unfortunately the tendency among sinologues, lured by the very entrancing development of Chinese thought and by the popular demand, has been to write conspectuses of Chinese philosophy before the necessary spade work, the detailed study of individual philosophers, has been done. The history of the history of Greek thought is full of errors due to similar mistakes. Dr. Creel's book, which is a Ph.D. thesis at the University of Chicago in the department of Comparative Religion, is a general interpretation of this sort.

The reading of the book is made difficult by the fact that the author coins a new term, "Sinism," and writes about it off and on for 63 pages before he endeavors to define it. Since he afterwards states that Confucius "gives us the first, and most complete, and the most faithful picture of the orthodox Sinism" (p. 80), and, "After Confucius, the integrity of the old Sinism . . . began gradually to disintegrate" (p. 82), he evidently means by "Sinism" the philosophy of Confucius. The reason he coins this term to represent a well-known philosophy is that he considers Confucius to have been "conspicuously unoriginal. . . . His teachings are almost entirely a setting forth and elaboration of the philosophy stated in the *Shu* and the *Shi*" (p. 72); consequently his philosophy was the product of some unknown thinker or thinkers, and deserves a new name.

Dr. Creel does not make a very strong case for this thesis; he cites these proofs: (1) Confucius' philosophy is found in two books that existed before his time, the *Shu* and the *Shi*. But Confucius edited both of them, and there is no way of telling how much he interpolated. A teacher such as he, who claimed to find his philosophy in the doings and sayings of ancient worthies, would be likely to edit his ideas into his accounts of these heroes, much as Lucian proposes to interpolate unauthentic speeches into history. It is furthermore quite probable that interpolations into the *Shu* continued to be made after the time of Confucius, down to the Han period at least, so that sometimes Confucius' successors wrote his philosophy into this book. (2) Confucius said of himself that he was "a transmitter and not a maker." But a sincere lover of antiquity would be very likely to read his ideas into the accounts of his heroes, and consequently with entire sincerity to pronounce himself as unoriginal, even though he did develop an original philosophy out of the popular ideas of the time. (3) Dr. Creel cites similarities be-

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tween the philosophy of Confucius and popular thought and that of other philosophers, especially Laotze. But the similarities are only general, and could easily be due to the influence of the Zeitgeist. No sure proof is therefore given that Confucius' philosophy was anything but his own original development.

Dr. Creel makes a contribution to the history of philosophy in that he emphasizes something that is not usually realized—the degree to which Confucius' distinctive teachings are to be found in the books he edited, especially the *Book of History* (the *Shu*). Any reasonable hypothesis, such as this one that Confucius was altogether unoriginal, is worth while working out, if only to show how weak a case can be made for it. In addition to coining a new term for Confucius' philosophy, of which Dr. Creel gives but an indifferent exposition, he discusses the background of that philosophy in popular thought, and traces its influence upon Micius and later Confucians, down to the end of the ancient period. The book lacks an index. There is not as yet an adequate manual of Chinese philosophy in the English language, although one is available in German. A series of monographs upon individual Chinese philosophers, followed by a comprehensive manual of Chinese philosophy, would be much more worth while than such a speculation as this work.

HOMER H. DUBS.

MARSHALL COLLEGE.

JOURNALS AND NEW BOOKS

PHILOSOPHICAL REVIEW. Vol. XL, 1. Philosophy in France, 1929: *Abel Rey*. Contemporary German Philosophy: *Arthur Liebert*. The Paradox of the Time-Retarding Journey (I): *A. O. Lovejoy*. Utilitarian Justice: Technical and Discretionary: *M. R. Konvitz*.

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NOTES AND NEWS

The following officers for the coming year were elected at the meeting of the Eastern Division of the American Philosophical Association, December 28–30, at the University of Virginia: President: Alfred N. Whitehead; Vice President: Albert G. A. Balz; Secretary-Treasurer: F. S. C. Northrop for a three-year period; members of the Executive Committee: G. W. Cunningham, S. P. Lamprecht; and E. A. Singer, Jr., *ex officio* for one year.

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The Seventh International Congress of Philosophy.
BRAND BLANSHARD.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVII. No. 23. November 6, 1930.

The Dialectical Argument against Absolute Simultaneity. I.
ARTHUR O. LOVEJOY.

How "Propositions" Mean. F. C. S. SCHILLER.

In Defence of an Impression. SIDNEY HOOK.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVII. No. 24. November 20, 1930.

The Dialectical Argument against Absolute Simultaneity. II.
ARTHUR O. LOVEJOY.

The Adjectival Theory of Matter. F. P. HOSKYN.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVII. No. 25. December 4, 1930.

De Anima: Psychology and Science. RICHARD MCKEON.

Religious Experience and Metaphysical Speculation: A Note.
H. M. KALLEN.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVII. No. 26. December 18, 1930.

Further on Good and its Structure. A. EDEL.

Books Reviews. Journals and New Books. Notes and News.
Index to Volume XXVII.

Volume XXVIII. No. 1. January 1, 1931.

Science and Philosophy. WM. E. RITTER.

Book Reviews. Journals and New Books. Notes and News.

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THE JOURNAL OF PHILOSOPHY

MR. LOVEJOY'S COUNTER-REVOLUTION. II.[1]

II. THE SEVENTEEN DUALISMS

"Rigorously and universally applied, this conception, it was evident, amounts to a complete denial of the possibility of knowledge. But happily, of course, it seldom is quite rigorously and universally applied."[2] This observation is made by Mr. Lovejoy in an other context, but it applies rather neatly to his own theory. For it is not always his purpose to defend so extreme and relentless a position as the one which he officially represents. Instead he attempts wherever possible to present the "dualism" of knowledge in a much more plausible fashion and to defend varieties of that doctrine quite different from the type of absolutism we have criticized. Now many of these dualisms have been attacked by one school or another of contemporary thought, and their defense is a necessary and valuable contribution to current discussion. Those of us who believe that a stable external world may still survive the oddities of recent physical speculations must be profoundly grateful for Mr. Lovejoy's comments on the views of Russell, Eddington, and others. But no one of these other dualisms implies the hypothesis of representative ideas. On the contrary, each of them is incompatible with some or all of the major premises of that hypothesis. In order to defend them our author is forced to contradict his own avowed conclusions and to appeal to those very features of the world which, e.g., an "objective relativist" would regard as essential for an adequate account of the nature of knowledge. We may well rejoice that Mr. Lovejoy is with us on these vital matters. The good cause could hardly have obtained a more formidable ally. But we must still insist that any such attitude requires the explicit rejection of epistemological dualism in its traditional form.

If the type of dualism already analysed is counted as one distinct variety, there are at least sixteen others invoked at some point or other in the course of the argument. I shall group these under three heads with reference to the main tenets of the type of dualism already considered. Thus under *A* we are to consider those views which are inconsistent with the sharp contrast between experience and

[1] Continued from preceding issue, No. 2.

[2] Page 150, *The Revolt Against Dualism.* All further references are to this book.

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nature which Mr. Lovejoy has previously maintained, under *B* those which presuppose valid knowledge of the characters which "reality happens to take on in a particular perspective" in contradiction of his avowed subjectivism, and under *C* those which conflict with a copy theory of knowledge. I do not contend that all of these dualisms are valid though it seems to me that most of them are. But I do maintain that all of them are vastly more probable if the "hypothesis of representative ideas" is explicitly abandoned.

A. The common-sense distinction between veridical and illusory perception, between those phases of experience which reveal the constant, public, and reliable features of events and those which do not, is frequently used by Mr. Lovejoy as an illustration of the dualism that he has in mind. It is an important distinction, and one which an adequate philosophy ought most carefully to observe. It is the irony of absolutism that our author himself is not at all in a position to observe it and is forced by the logic of dogmatism to obliterate the very distinction on which his theory depends for much of its plausibility. For the distinction between veridical and illusory perception involves the recognition, not merely that some perception is illusory as he argues against the new realists, but also that some is veridical. And if all experience is the subjective presentation of "true parts of the physical world" and is real or valid only in so far as it duplicates their intrinsic characters, then there is no good reason to suppose that the grey rats of conventional experience are more veridical than the pink rats of the drunkard's disordered vision. The "real" object of this theory is no more grey than pink and, if its "real" properties be identified, as Mr. Lovejoy regularly assumes in criticism that they must be, with those which physical science would attribute to it, is little more "like" an ordinary rat that it is "like" the most fevered imagining of our erring brother. That the attempt to turn scientific objects into the archetypes of perceptual objects and then regard as perceptually illusory whatever is physically or scientifically irrelevant must lead to such a consequence is evident. For we have seen that whatever does not duplicate the intrinsic properties of such an object is epistemologically subjective, and in speaking of the relativity of "perspectives" in space-time our author does not hesitate to say that the "equal rightness" of such perspectives and of judgments based upon them "means simply the equal wrongness of all of these judgments, their epistemological subjectivity."[3] The veracity of my perception of a green tree or a grey rat simply does not depend upon its resemblance to the intrinsic nature of the objects of physical analysis. It is to be found precisely in the meanings of ordinary activity and communi-

[3] Page 145.

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cation and the expectations we base upon them. Einstein's space-time continuum does not prove my judgments or ordinary spatial relations to be illusory, since the features of events with which Einstein is concerned are not those I judge about in the ordinary processes of locomotion. And so it is with the pink rat. If I could touch it and depend, within limits, on its orthodox reactions to my own attentions, above all, if I could agree with others as to its status, I should be right in regarding my perception of it as veridical. The sort of consequence which would verify my judgment does in this case genuinely determine its meaning, and it does reveal the permanent, common, and independent nature of events, just in so far as that consequence *is* dependable, *can* be verified by standard observers, and *does not* depend upon what I suppose or believe the event to be, but on what actually occurs under the conditions specified. Any experience whose meanings are thus verifiable is the presentation of a common object and it is the revelation of an objective situation whose reality can not be impugned by the irrelevant introduction of some further reality as, e.g., that of physical science, whose nature was not the object of reference *here* at any time. But when such an ulterior object has been introduced and made the standard for valid perception we have no longer any right to retain the common-sense distinction between reliable and unreliable meanings of perceptual objects. In this sense no real object can be other than the remote and problematic outcome of a highly abstract conceptual construction, and no experience can claim any other validity for knowledge than its resemblance to *such* a reality will warrant.

Dualism 2. There is always a possibility of error in common-sense knowledge, since in this case what we claim to know, involving relations to past and future and to other percipients, is never wholly verified by the mere occurrence of our experience. But it is genuinely capable of verification, since this experience itself may in fact have such relations and if it does it really is a presentation of the object in question. The duality between experiences which do stand in the anticipated relations and those that do not and are, *as* presentations of such objects, illusory, is a real one. Not so for Mr. Lovejoy. For him, "where error is *conceivable,* the relation between content and *cognoscendum* must be the same as in the case of actual error." This alarming statement is amplified as follows: "The generic nature of judgments-potentially-erroneous must be conceived in such a way as to permit the genus to have both judgments actually true and judgments actually false as its species—and to make it intelligible that the latter are aiming at the same mark as the former without hitting it."[4] The obvious retort would be that

[4] Page 23—my italics.

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it is precisely where the relation is *not* the same as in actual error that even "potentially" true judgments can be made. That in Mr. Lovejoy's view the relation *is* the same and must be so is obvious. And that for him *no* distinction can be made between illusory and veridical perceptions or judgments as the basis of the relations to their objects in which they stand is equally so. The transition from "*potentially erroneous*" to "the same as in the case of actual error," inherent in dogmatism, has excluded *this* sort of dualism from even possible compatibility with the hypothesis of representative ideas.

Dualism 3.—The contrast between what we can perceive of the world of nature and what we can not, and the demand that the view we take of the latter must be based upon our knowledge of the former is dualism of a sort, and good realism into the bargain. In his analysis of recent speculative adventures in physical science Mr. Lovejoy defends it very ably. Thus he argues that the scientist does and must assume that "the things he can't quite see are of the same general nature as those he can see—i.e., are extended and capable of motion—and that the motion observed need not be assigned to a different type of cause from that which would be inferred if the particles surrounding it were of a perceptible order of magnitude."[5] In this connection Jeans is triumphantly quoted in such realistic phraseology as that of "seeing the fronts of two objects" through a telescope. But the very mention of a telescope puts us on our guard. The two objects which Jeans has claimed to see through his telescope are stars, and has not Mr. Lovejoy assured us many, many times that it takes light a very considerable time to travel from star to earth and that the star itself may now have gone completely out of existence? It appears, therefore, that the astronomer never saw a star at all, but only a bit of mental content and if the hypothesis that the scientist is to interpret the things he can't see on the analogy of those he can see is to be taken seriously, Eddington's theory of mind-stuff is a more orthodox doctrine than any which presupposes a literal physical reality, since no such reality can, on this theory, ever be seen at all. Indeed, to speak to the scientist of "objects he can't quite see" as though they were lurking just around the corner for him is to raise false hopes. For no real objects of the sort which any realist postulates can ever be seen by a physicist or anyone else under any condition whatever. There are no physical objects of "perceptible magnitude" and if "data" are extended and move it is clearly not in the sense in which physical objects are thought to do so. Similar ambiguities occur elsewhere. We read of the "visual and tactual content called ashes"[6] and are told that in memory no man

[5] Page 295.
[6] Page 298.

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doubts that "something of a canine sort"[7] is immediately present in his experience. But since ashes are true parts of the physical world it is perfectly clear that no visual or tactual content ever should be called ashes, and the representative idea of a dog, which is all that experience reveals to Mr. Lovejoy, is not something of a canine sort—it is not a sort of dog. The criticism is not merely captious. For it is only by talking as if we did really perceive objects of the sort which a realist assumes and not the visual and tactual content inaccurately called by that name that our author can make out the case for realism. And, granted the initial premise, it is a good case. If perception does reveal genuine realities in their relations the scientist may legitimately inquire about the further and connected realities which such relatedness suggests. But if the whole value of what we do perceive depends on our knowledge that it resembles something we can never perceive it is obvious that we can not base our knowledge of the unperceived world on what we perceive because we must first know the nature of what is intrinsically imperceptible in order to know that experience has any noetic value at all.

Dualism 4.—It is sometimes supposed that we perceive the same objects, and a contrast is made between such "common objects" and our private ideas of them. The realist is said to assume an order of nature which is "a common factor in or behind the experience of all percipients,"[8] and has reason to identify "the characters found to be common in all [standpoints] with the sort of object knowledge aims at."[9] But since there is some spatio-temporal separation between all percipients and since any such separation prevents identity of content, it is apparent that no data whatever are common to all standpoints on this view and that the sort of object knowledge aims at can not possibly possess such continuity with experience. The "common factor" is always behind experience and never in it, and the duality of private and public experience is not for this theory the common-sense distinction of sharable and unsharable meanings, but the metaphysical dualism of wholly private experience and wholly external object.

Dualism 5.—Some dualistic theories might assume that we have direct experience of our own bodies. Such an assumption Mr. Lovejoy finds highly useful in his justification of our belief in an external world. He writes of "experienced bodily movements"[10] and of "perceived bodily movements" which I initiate and whose effects in external motions are perceived by others.[11] This is clearly inac-

[7] Page 305.
[8] Page 27.
[9] Page 131.
[10] Page 301.
[11] Page 299.

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curate for his own earlier theory. For have we not read that "*all* knowing is mediated through the presence "before the mind"—of entities which must be distinguished from the ulterior reality which is the object of knowledge"? The states and motions of my body as a true part of the physical world are as definitely external to any possible experience as the internal structure of the atom. They can not be used as given data for any hypothesis about external nature.

Dualism 6.—"It is at least not *impossible* that the processes which cause and link together the percepts of different times and different persons are of the same general sort as the causal sequences which empirically occur within our perceptual experience. No fact of experience, obviously, can prove the contrary."[12] But the hypothesis of representative perception can do so. For if any causal relations are perceived, they must be those which hold between sensations and ideas and those, as Hume showed long ago, would follow laws of mental association and not of physical causation. The causal relations on the contrary which link together such experiences are those of real physical objects which have their being and efficacy in "another realm" and are very profoundly different from anything which mere "content" can be thought to exhibit. Some sort of dualistic realism might make grateful use of the hypothesis of causal continuity suggested above, but not the theory here in question.

B. The "objectivist" has continually argued that in order to have valid knowledge of nature we must assume not only that experience and nature are continuous, but also that even the most private, contingent, and transitory elements of experience, the characters which reality "happens to take on" in particular perspectives, are realities of their own sort and can be known for what they really are. It is highly gratifying to learn that Mr. Lovejoy in fact assumes precisely the same thing and makes a very extended use of that assumption. He even regards it as fundamental. The resulting theory of knowledge is dualism with a difference.

Dualism 7.—We read that "the type of cognitive—or putatively cognitive—experience with which a systematically epistemological inquiry ought to begin is not perception, but retrospection, or, more specifically, remembrance. This is the primary mode of knowing which must be presupposed, explicitly or tacitly, in any reflection upon the implications of what is sensibly given; and it is the kind of knowledge about the reality of which there is least disagreement."[13] I agree. But what is it that we are said to remember? Surely not "true parts of the physical world" for these have never been perceived and hence can not be remembered. The only facts

[12] Pages 299–300.
[13] Pages 304–305.

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that have been experienced on this view, and hence the only ones that are the objects of retrospective attention, are particular ideas in the past—they are, in fact, the characters which reality happens to have taken on in a particular perspective and from a particular standpoint. Surely Mr. Lovejoy will not claim for memory a wider scope than this. If, in spite of this fact, memory can serve as the very type and model of valid knowing which all the rest presupposes, it must indeed be the case that relative and transitory experiences are, at least in some cases, "the sort of object knowledge aims at." The agreement on this point is most welcome.

Dualism 8.—Our knowledge of secondary qualities is a further problem. Can we have a valid knowledge of such qualities even though they are recognized not to be representations of the intrinsic properties of true physical objects and hence not "epistemologically objective" in our author's sense? Mr. Lovejoy's orthodox dualism can make no such concession. The passage in which he discusses this matter is lengthy but very instructive. It appears that there are degrees of objectivity and that a judgment about light waves as the source of color sensations is epistemologically objective "in so far as it (*a*) transcends both my present and my permanent individual standpoint, and (*b*) has reference in part to objects, *viz.*, light-waves and light-sources, which are assumed to exist apart from the visual sensations to which they give rise, i.e., independently of relations to percipients. But the judgment is epistemologically subjective in so far as it also relates to properties which are dependent upon a "standpoint," *viz.*, the optical constitution of the human animal. It is, in short, an objective judgment partly about an epistemologically subjective existent; it is the usual modern way of putting the thesis of the subjectivity of color. The objectivity belongs to it in virtue of its asserting something which is not relative to a standpoint, the subjectivity in virtue of its asserting something that is so relative. And so far as the objectivity is assumed to reach, so far knowledge is claimed; so far as the subjectivity (in this sense) is assumed to reach, so far the claim to positive knowledge is denied. To assert the relativity of color to sense-organs is to say that we are in certain respects ignorant of the real qualities of light-waves and luminous objects."[14] Three comments are appropriate here. (1) Mr. Lovejoy throughout treats our knowledge of color as though it were merely an attempt to know something about light waves—it is the part of the judgment which refers to the light waves, not that which refers to the color, which is objective. It is not surprising that this should lead him to conclude in the last sentence that if colors are subjective they are mere ways of being

[14] Pages 133–134.

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ignorant about light waves. This is the typical fallacy of subjectivism. (2) It is the nature of *the object* of our judgment "so far as it relates to properties dependent upon . . . the optical constitution of the human animal" that makes it subjective, not the nature of our belief itself. Causal dependence on the human organism is thus relativity to a standpoint and any judgment which asserts something so relative involves this type of subjectivity. This clearly holds for any element in experience that depends in any detail not for its apprehension, but for its occurrence, on the behavior of our bodies. (3) And "so far as the subjectivity (*in this sense*) is assumed to reach, so far the claim to positive knowledge is denied." It is apparent, therefore, that any claim that Mr. Lovejoy or anyone else makes to a valid knowledge of the nature of secondary qualities is contradicted by the subjectivism of his own explicit theory.

Dualism 9.—The status of pink rats now becomes very puzzling. There is no doubt that Mr. Lovejoy claims to know that such entities are occurrent in the experience of some percipients. The fact that they do so occur is one of his favorite arguments against the new realist. But pink rats are obviously epistemologically subjective in his sense. Hence any judgment which asserts anything about them is subjective as well. Therefore it can make no possible claim to be positive knowledge. And if our author does not know that there are any such illusory experiences how can he make use of them in his argument? Again he is presupposing something that his own theory can not justify.

Dualism 10.—It may be argued, however, that Mr. Lovejoy merely intends to maintain that an object of knowledge must be independent not in its occurrence as an event but in its status as an object of knowledge, as something discovered and not constituted by our opinion or belief about it. That in this sense *any* object of knowledge whatever is independent of the "standpoint" from which it is viewed is in all truth a cardinal tenet of a realistic philosophy and I, for one, would endorse it most heartily. Thus when our author observes of the object of memory that it is "something which did not get its then character from the fact that I am today trying to remember it, nor from my present mood, nor from any peculiarity of the act of retrospection in general," [15] he is on firm ground. And, more generally, it is doubtless true that any "predication of existence is not identical with what is predicated." But this applies no less to the contents of present experience than to memory or physical science. However my experience may be conditioned, it is, as the object of true judgment, the standard to which thought *about it* must conform quite irrespective of the mood of the knower or the

[15] Page 133.

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peculiarities of his act of knowing. If this is the dualism between knowledge and its object which Mr. Lovejoy has in mind, our objection is not that he has carried it too far but that he has not carried it far enough. This dualism is not merely compatible with direct knowledge of the contents of experience, it directly implies it. The real issue here may be put in the form of a dilemma. If our author actually holds that only those objects can be known whose occurrence is causally independent of percipient organisms he is contradicted by the admitted validity of memory. If he holds that independence of the act of judgment or belief is sufficient to constitute a valid object of knowledge then there is no good reason for denying that title to the present contents of experience in precisely the objective relativist's sense. In neither case is the sort of dualism which experience justifies compatible with that confusion between causal dependence and privacy in occurrence and subjectivity as mere belief or opinion which is the very essence of representative ideas.

C. If indirect knowledge of objects which differ in important respects from any we experience is to be possible there must be some sort of continuity and some sort of divergence between, e.g., the world of experience and that of physical science. On this point Mr. Lovejoy and his critics are in agreement. The issue between them is this, that the kind of difference which Mr. Lovejoy asserts is one which is incompatible with the kind of continuity valid inference presupposes. The data of experience and the objects of science are doubtless very different but they do not differ as appearance and reality or as given copy and ungiven archetype. And because they do *not* differ in this respect it is perfectly possible for us to assume that they do differ in others, whereas our author's copy theory demands a kind of qualitative resemblance which is, to say the least, unlikely. Hence his defense of the possibility of indirect knowledge forces him to fluctuate between the incompatible assertions of a quite unplausible gap between experience and the rest of reality and an equally dubious connection. In marking the course of this fluctuation we can understand most clearly the fruitful alternatives which a realistic theory of knowledge might develop, but from which Mr. Lovejoy's absolutism has excluded him.

Dualism 11.—There is no doubt that a spatio-temporal diversity usually exists between any knower and the object of his knowledge. In such cases "the existent known is at least external to the cognitive event assumed to take place in 'an' individual mind—namely, it is either 'in' some other mind, or has a different temporal locus in the series of events constituting the history of the same mind."[16]

[16] Page 316.

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And this diversity is not incompatible with the possibility of knowledge. Our difficulty with Mr. Lovejoy's theory is not that it asserts such diversity but that, by identifying the boundaries of experience with the physical contours of the organism, it renders such knowledge as would overleap those boundaries utterly mysterious. It will not do to insist that valid knowing nevertheless occurs. The fact is admitted and offered as evidence against a theory which appears to undermine its possibility.

Dualism 12.—Any inductive generalizations which include ungiven objects presuppose a kind of indirect knowing and a sort of dualism between data and objects known. But here "data" means simply evidence, and the ungiven object has no preferential metaphysical status but merely a discoverable logical relationship to such evidence. To assert the possible validity of inductive reasoning is not at all to assert the plausibility of the hypothesis of representative ideas. This confusion is not absent from *The Revolt Against Dualism.* "If I am at any given moment to have knowledge of events or entities independent of my individual constitution and momentary condition, I must reach these ulterior realities through present and private data and the ultimate justification, if any, for so doing, must be found either in a reasonable faith or in some process of probable inference. The traditional reproach against historic dualism has been that this penetration through and beyond the immediate to the not-immediately-given is impossible and inconceivable."[17] Not at all. The reproach, in its more enlightened form, has been that such penetration *would be* inconceivable if the theory of representative perception were valid, not that it is so in fact. And that reproach stands. Induction reasons from fact to its probable correlate, not from mere appearance to an ulterior counterpart. As Mr. Whitehead has cogently argued, unless the basic connections which induction presupposes are discoverable in the world as directly known, they can not be used as a foundation for further knowledge. A theory which reduces experience to a passive copy of external reality furnishes, if true, very good ground for *not* believing in the validity of induction.

Dualism 13.—Mr. Lovejoy has a tendency to invoke the "bifurcation" involved in recent physics in support of his own type of dualism. It is a "major irony," we are told, that the revolt against dualism should have occurred just when physics was approaching the most dualistic phase of its career. So the conclusion is reached that "so far as philosophers are concerned, the general result of the work of Einstein is simply a vindication of dualism." For obviously the data of perception do not consist of the characters which, upon

[17] Page 153.

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any such view, constitute "the objective universe disclosed by relativity; they differ from it far more widely than from the objective world of the older physics."[18] And this supports the general conclusion that "the content of our actual experience . . . consists of particulars which . . . are destitute of the essential properties and relations implied either by the historic concept of the 'physical' or by the contemporary physicist's concept of it, and possess properties which physical things lack."[19] But such a critic as Mr. Whitehead has never interpreted "bifurcation" in any such fashion. That physics has found it convenient to narrow the range of "physical reality"—so far at least as the theory of relativity is concerned—so as to exclude shape, size, and motion is conceded on all sides. There is no objection to such a procedure. What does become evident in such a development, however, is this, that physical objects as thus defined can not possibly be identified with the true objects of perception or the external archetypes to which valid experience must correspond. This surely was the main point in the attack on scientific bifurcation—not at all that it may not select such abstract objects as it finds fruitful for its analyses, but that it must not identify this selection with the total nature of reality. And this conclusion grows increasingly imperative. It is precisely because the world of physics does differ so widely from that of ordinary experience that we can not any longer regard the latter as an attempted representation of the former. Nor need we do so. Science is concerned with those causal properties of unperceived events which explain and constitute the general order of physical law; experience in its own fashion presupposes such objects and its occurrence provides some clue as to their nature. But to regard it as their copy or qualitative duplicate, the appearance of their reality, is quite impossible.

Hence we may understand Mr. Lovejoy's own embarrassment when he comes to closer quarters with these scientific developments. Having differentiated experience and scientific objects as diverse realms of being, he must now, to guarantee any valid knowledge, assert their essential resemblance, since only such resemblance will justify knowledge. And there is no good reason to believe that such resemblance in intrinsic properties exists. Has not he himself asserted that data are "destitute of the essential properties and relations" of physical objects? How then can he hold—as he does—that knowledge requires that data shall possess, and *therefore* be able to manifest, the characters of their objects, and that *only* where we ascribe the qualities of data to their objects does transitive knowledge occur? Conceived as the external archetype of common-sense objects

[18] Page 147.
[19] Page 264.

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the physical world has in all truth grown more and more evanescent and the paradoxes which Mr. Eddington discovers in its nature are just those which would apply to it *if* it were to set up in business as the intrinsic and exclusive reality of things. Small wonder that our author, defending *this* sort of bifurcation against the attacks of scientists themselves, can only come to the very lame conclusion that "its general breakdown is not yet conclusively demonstrated." [20]

There is, of course, another view about the nature and reality of physical objects, and one which is very well expounded by Bridgman in his *Logic of Modern Physics*. It would suggest that the function of physics is to discover the effective operation of physical objects and not at all their "inner" nature. This kind of knowing is amply illustrated by the operational concepts of current experimental science. It can be verified experientally through such relationships and through the observed occurrence of those consequences which physical hypotheses would have led us to expect. At no point does it require that the effect should resemble the cause or that the validity of knowledge should be contingent upon the qualitative likeness of entities which, so far as physics can tell us, are basically and essentially different. If this view is followed, what would be sheer vanity and illusion as an attempt to qualify physical realities as the originals of representative ideas is simply sound sense and reason as an estimate of the functional relatedness of events. Having separated experience and scientific objects in a way which science does not require, Mr. Lovejoy has been forced to reunite them in a way that science will not warrant. If the result of this attempt is a highly unplausible notion of the objective status of scientific knowledge, it is at least probable that it is the dualist and not the physicist who is at fault.

Dualism 14.—There is a dualism in knowledge between "symbols" and what is symbolized. There are passages in which Mr. Lovejoy takes up the defense of this type of indirection in knowing, under the mistaken assumption that it is being attacked by the critics of representative ideas. He tells us that "in the case of retrospection or anticipation, as in all other cases, knowing manifestly does not consist in blankly glaring at isolated and unrelated bits of content. The content is permeated with relational categories; its parts are given as having diverse situations in one or another schema of relations, of which the temporal distinctions of relative data—before-and-after, past-present-and-future—are one type." [21] *The content is permeated with relational categories.* But, for the traditional dualist, what of it? There is a pattern *given*, it

[20] Page 296.

[21] Page 311.

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appears, and the datum is recognized as having a different place and time from "the particular event, within the pattern, upon which our cognitive attention is specifically directed."[22] It is then an event within a *given* pattern upon which cognitive attention is directed. But is the event to be known given as within this pattern or is it not? If it is, then it, too, is known directly. If it is not, then the whole given situation, pattern and all, must be set down as representation whose validity depends not upon the relational categories which permeate *it,* but upon a further and wholly ungiven relation of resemblance to an ulterior object. Thus we learn very soon that the pattern of relations which was to serve as a basis for knowledge is only the representation of a real structure of relatedness. "For the given characters of the symbols are referred to a situation *in the conceptual schema* which is external to that which the symbols are recognized as having therein."[23] But it was not in a conceptual schema that cognizable events were affirmed to exist, but in an external world. The reference to situations in a conceptual schema is not knowledge, for it concerns "content" and not external realities. The further duplication of this conceptual schema in the ulterior world would be a basis for knowledge, but this relation is not one with which data can possibly be known to be permeated. The dualist's dilemma is the familiar one. If the relatedness is given it is not knowledge; if it justifies knowledge it can not be verified in the given. This does not mean that no indirect knowledge is possible. There are other relations than that of copying that *can* afford knowledge of related terms without an independent knowledge of the intrinsic properties of both terms related. If *these* relations were relevant, and if their presence in the given situation were itself some foundation in objective reality for conclusions *about them* rather than their archetypes, the condition would be different. But that, for our first type of dualism, is a condition contrary to fact.

Dualism 15.—In a myth at the close of his exposition, Mr. Lovejoy introduces a very Whiteheadean development. We learn that for transitive knowledge, "what is needful is that the nature which belongs to one region of being shall be not only reproduced in another, nor merely, when so reproduced, be beheld by a creature having its existence in that other region, but that it shall be reproduced and beheld as if present in the region in which it first existed, and as belonging to a thing which had or has its being there; only so can any creature see another as being another, and the mutual blindness of the parts be in a measure overcome."[24] It must be apparent, how-

[22] Page 311.
[23] Page 312—my italics.
[24] Page 321.

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ever, that for this author the one thing needful is even more unattainable than the camel passing through the eye of a needle. The myth is only a myth. For in criticizing Whitehead's precisely similar view Mr. Lovejoy has said that "*A* is not *B*, and it is not where *B* is, at the time when *B* is there; there is merely a special type of causal relation between them."[25] And, in general, "If a quality characterizes an 'event' it does so by acquiring the temporality and the localization of the event—in short, by assuming the properties by which 'existence' has been defined."[26] The nature that belongs to (characterizes) one region of existence (the datum) can not possibly therefore be beheld as having its existence in another region and belonging to a thing which has its being there, for it has already acquired the temporality and location of the first region of existence. It has thereby assumed there exclusively the properties by which existence is defined. The same particular can not be in two places at once. The orthodox dualist may thus indulge in myths as to what transitive knowledge would be like if there were any, but he can not ever believe them.

Dualism 16.—The homogeneity of experience and the objects of knowledge might not be supposed to be a cardinal tenet of this philosophy. Yet in his attempt to find some rational foundation for indirect knowledge Mr. Lovejoy is driven to say that "the external world with which I am in relation in action" is "fundamentally homogeneous with the perceptual world"[27] and that we have a "power to conceive of some realm or order of inter-related existents which includes but extends beyond the organism itself and the sensa and images which are immediately present to it."[28] That sensa and images even are thus included in that order of existences which includes our bodies and those true parts of the physical world which are the objects of conception is very good news. But it is more than a little hard to reconcile with his previous assertion, in criticism of Mr. Russell, that the seventeenth-century dualists were right in preferring "a radical discontinuity between it (the physical order) as a whole and an essentially distinct and disparate realm of being" to the admission of a radical discontinuity within the physical world itself.[29] A little later he welcomes Russell to the camp of the faithful by observing that "the universe depicted in his latest works consists—upon final analysis—of two mutually exclusive and wholly dissimilar classes of particular existents.—The first world is the world of experienced content; the other is the metempirical physical

[25] Page 173.
[26] Page 111.
[27] Page 300.
[28] Page 319.
[29] Page 240.

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world behind the content and causally prior to it. A universe made up of two orders of being thus contrasted and thus related is in all essentials the familiar world of dualistic philosophy.''[30] It would thus appear that the familiar world of dualistic philosophy is not the world to which our author feels impelled to appeal when he is trying to justify our knowledge of external nature. The one realm of occurrent nature which includes sensa and images is in all truth more plausible than two radically distinct and disparate realms of being. But in order to accept it we must abandon what is ''in all essentials'' the world of dualistic philosophy.

Dualism 17.—It is obvious that the alternative dualisms discussed under these various heads have much in common. They all presuppose a plurality of types of object within a single world of interacting events. A view which recognized the distinctness of such objects, each quite real and ultimate in its own kind, which grounded our knowledge of them in the occurrent reality of the perceptual situation itself and which discovered in the effective relatedness of objects a valid clue to their objective nature, might include these various tendencies in a systematic theory of knowledge. Such a theory, as I understand it, is the doctrine of ''objective relativism.'' It differs radically from Mr. Lovejoy's official view in its attitude toward the exclusive prerogatives of common-sense knowing. But it differs far less from the facts to which Mr. Lovejoy is forced to appeal at every turn to justify common-sense knowing itself. Is it possible that in spite of his official opposition and in spite of the real incompatibility of his absolutism with its own more modest pretensions, it is toward this theory and no other that the logic of common sense is forcing its ablest representative just when and in so far as he states that view constructively and with regard to the evidence in its favor? There is room, I think, for a very strong suspicion that such is in fact the case.

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BOOK REVIEWS

Proudhon, Sociologue et Moraliste. JEANNE DUPRAT. Paris: Félix Alcan. 1929. xii + 328 pp.

Proudhon had an especial antipathy toward *les femmes docteurs,* the women writers who ventured into what he considered the too-rude battle for social justice. Today they have their revenge in the person of Mlle. Duprat, *Docteur en Sociologie,* who teaches at the University of Geneva, and who has prepared the proverbial coals

[30] Pages 254–255.

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of fire in the form of a competent and sympathetic study of the ethics of the *grand méconnu* of mid-nineteenth century French socialism. Proudhon has long been the victim of six words which, wrongly interpreted nine times out of ten, almost everyone immediately associates with his name and fame: *"La propriété, c'est le vol!"* Occasionally someone also recalls that his *Philosophie de la misère* drew a savage *riposte* entitled *Misère de la philosophie* from the ungrateful Karl Marx. But to write down Proudhon as "just another Utopian agitator" with a system out-moded by the age of Ford, is to miss many sane, penetrating, and utterly undemagogic ideas for the future of humanity which may be found in the works of the enormously productive printer-polemist of Besançon.

Mlle. Duprat's monograph, which was begun before the recent wave of interest in pre-Marxian socialism brought Proudhon to his present prominence, confines itself to the sufficiently arduous task of disengaging from his scattered treatises a coherent ethical doctrine, which, she endeavors to show, was "sociological" in the modern French sense, long before the new science, invented by Proudhon's contemporary, Auguste Comte, had reached its classic development at the hands of Émile Durkheim and his followers. But in her book, as in real life, Proudhon *moraliste* triumphs over Proudhon *sociologue*. That Proudhon wished to be the latter, to found his social philosophy securely upon what would be known today as the *science des moeurs,* was pointed out by Professor Bouglé some twenty years ago.[1] Mlle. Duprat's early chapters, however, show in detail how far Proudhon fell short of his aim: how his early interest in experimental observation of the whole range of social life leading to a genuinely descriptive science of society faded before a new enthusiasm, that for his rationalistic "principle" of justice, or social dignity founded upon labor, as a weapon to be used against intolerable economic "immorality."

So while Proudhon may justly boast of having put the phrase *"science sociale"* into circulation,[2] he can not, in spite of all the texts so painstakingly assembled by the author, be said to have had a clear idea of what the new science was to be like, or the patience to contribute directly toward its establishment. Product of a theological tradition, early transformed by persecution into "an irreconcilable enemy of the present order," Proudhon never denied that his intellectual labors were carried on primarily for the purposes of action. His intense moralizing passion was bound to short-circuit his undoubted aspirations toward scientific impartiality. Denounc-

[1] Bouglé, C., *La sociologie de Proudhon.* Paris, Colin, 1911.

[2] Claim made in a letter written in 1862, probably referring to a public letter written in 1838.

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ing all traditional dogmas as unscientific, he based his whole alleged "'science'' of conduct upon a value-theory dominated by an almost Platonic idea of justice, which he sincerely believed to be ''demonstrable'' by an empirical appeal to history, but which he came very far from demonstrating himself. Like so many of his contemporaries, following Condorcet and Saint-Simon, he saw history in terms of a dialectic of progress through epochs toward, in his case, a higher organic synthesis, or ''superior principle of social organization,'' namely *solidarité*. Here, as elsewhere, he uses the language of Hegel's logic, with no intention of understanding, much less of adopting, the latter's metaphysics. Roused by the crying economic sinfulness of his times, Proudhon burned to point out to his fellows the long road to secular salvation, never doubting that he had found it himself. His keen sympathy for his fellow-victims supplied him intuitively with clear convictions about the past and hasty deductions for the future, which he simply could not believe a patient scientific examination of the data would contradict. For that reason he inescapably belongs in the Encyclopaedist, secular-religious tradition (and who shall say that it is not a great one?) of those who seized upon the sciences of man (none too scientifically, it seems) as weapons against abominable injustices.

But if Proudhon is only by ambition a sociologist, as a moralist his talents are beyond question. Few articulate workers have sensed the economic imponderables as acutely as he did; and students of the ethics, psychology, or physiology of labor neglect him at their peril. His is the first ethics to base itself entirely upon the surprising (to the ancients at least) idea of the personal dignity of labor, almost wholly without theological reinforcement. The sum of its commandments is *''Respecte-toi,''* that is, aspire toward a free individual personality, which can be achieved only by possessing and understanding a social function, by joining freely with others in labor for human well-being. This ''moral union of all to preserve the dignity of each individual'' will set up ''collective liberty'' without external constraint. Mutualism, coöperation, functional equality, proportionality, organic solidarity, reciprocity, self-discipline, fraternity—these are some of the words which Proudhon would oppose to separatism, bureaucracy, privilege, levelling, *laisser-faire,* or Marxian ''animality.'' He is neither, as he is often regarded, a libertarian individualist, nor a Comtian worshipper of *le Grand Etre Humanité*. He sets up as his ideal a spontaneous social contract that is a real exchange of mutual respect, something which could never result from the class struggle. Suspicious even of labor unions lest they sacrifice human dignity in such violent measures as strikes, it is small wonder that he earned from Marx the contemptuous

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epithet: *"utopiste petit-bourgeois."* Proudhon's "organic revolution" can be brought about (here speaks the worker of 1830–1849) only through education. Begin in that cradle of labor, the chaste and industrious home, and educate all men in everything possible pertaining to their work, continuing through an apprenticeship in which "each worker will feel himself the continuer of a great human tradition."

Hors du travail, then, *pas de moralité.* But why labor? Does not the title of a recent book assure us that "Only Saps Work"? Proudhon risks his all on a single moral principle which he is never quite able to establish firmly. Man, he tells us, is the only working animal. Labor is his obvious calling. At times Proudhon speaks in terms of pleasure: work is to become man's *suprême volupté;* but more often he sounds the note of duty in terms of man's universal *dette sociale* to other men. But whence this *devoir?* Are we, like the children of present-day Europeans, born with war-mortgages around our necks? Proudhon's only real answer is a gesture of appeal to the *science des moeurs:* the obligation to mutual industry is, as it were, in the cards. It may not be fully developed, but it is there in germ as a "characteristic tendency of the human being." And so, one might add, is the tendency to loaf.

Not the least useful part of Mlle. Duprat's thorough study is that in which she sets Proudhon over against other social reformers, such as De Maistre, De Bonald, Lamennais, Saint-Simon, Comte, Cabet, Louis Blanc, Pierre Leroux, and especially Fourier. Separate sections are also devoted to Karl Marx, Renouvier, and Durkheim. Her estimates are usually just. Sometimes she is pardonably blind to her hero's deficiencies. There is both a bibliography and an index.

Proudhon, like Saint-Simon, of which he may perhaps be called a "democratic version," was a remarkable prophet of our present Age of Machines, at least in locating its central problems, if not in solving them. Both men sought social reorganization and a secular *morale* for labor, Saint-Simon finally turning to a new religion, while Proudhon relied upon ethics alone. It would be too much to say that America has tried and found wanting his program of "All work and no play," but at least we are in an excellent position to appreciate the virtues and vices of his social philosophy, along with other theories similarly based upon a single economic idea.

UNION COLLEGE. HAROLD A. LARRABEE.

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Gestalt Psychology. WOLFGANG KÖHLER. New York: Horace Liveright. 1929. Pp. x + 402.

The Science of Psychology. RAYMOND HOLDER WHEELER. New York: Thomas Y. Crowell Co. 1929. Pp. xvii + 556.

Readings in Psychology. RAYMOND HOLDER WHEELER. New York: Thomas Y. Crowell Co. 1930. Pp. x + 597.

Wheeler's two books should be examined along with that of Köhler, for, through their wealth of illustration they bring home the new interpretations of experimental data which already are coming into acceptance in American laboratories, as the result of *gestalt* theory. This new and more liberal atmosphere needs for its continuance, however, an understanding of the underlying assumptions of that doctrine, such as Köhler for the first time presents to English readers. I can find no evidence that American psychologists appreciate this necessity. Even Wheeler, while accepting and applying to the whole domain of psychological science the *gestalt* formula, unwittingly, I think, contradicts those assumptions. Dunlap and several other leading psychologists have protested that "*gestalt* theory is a belated recognition of principles which have been accepted as matters of course by progressive American psychologists for twenty-five years."[1]

But this complacency, which results from failure to appreciate the underlying assumptions of *gestalt* doctrine, is regrettable because it permits the repetition and revival of errors that *gestalt* theory, properly understood, corrects. For example, in a text[2] published this summer (1930), "carefully revised" by two well-known progressive psychologists, on the first pages to which I happen to turn, I find such statements as these: "When an organism is stimulated into activity the activity *at first* is quite without end or purpose" (p. 188). "The chief distinction between images and perceptions when we compare them as actual experiences is a difference in intensity." Neither statement has empirical support and both rest upon ancient assumptions which *gestalt* doctrine has about driven from the field. Similar statements help to fill pages of any conventional text in psychology, and serve no other purpose. This indifference to underlying theory we may, with Boring, call "eclecticism"; but its result is what McDougall calls "Chaos."[3] Without the careful study of "philosophical presuppositions" which Köhler exemplifies, any "Way Out" from this Chaos can lead only to Night and the Abyss.

Köhler's primary assumption is that the objective world is what

[1] Knight Dunlap: *Scientific Monthly*, July, 1930.

[2] *Elements of Human Psychology*, Warren and Carmichael. Revised edition, 1930.

[3] William McDougall in *The Journal of Philosophical Studies*, July, 1930, "The Chaos of Modern Psychology and the Way Out."

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he calls "the world of *direct* experience, näively and uncritically" found by *direct*, immediate observation, and exhibiting *direct* determination of one complex organization of events by another such organization; so that all *objectivity* in any science, whether in physics or in psychology, consists in reference to this world, with which thought begins. Therefore, for any order in events that is "directly observed," there must be found, *and assumed until found*, "a corresponding concrete order in the underlying dynamical context" of physiological processes (p. 65). What, then, is meant by this term "direct" in these expressions, direct experience, direct observation, and direct determination? And what is the relation of events in the world of direct experience to the physical and physiological world which is said to "explain" them?

The word "direct," as I understand it, in all these uses, refers to the reproducing, picturing, or imitating of one complex organization by another, as a whole; and for psychology the most important instance is in the individual's *sensory organization*, which reproduces "directly" or as a whole, the complex dynamical structure of segregated wholes, in that part of the objective world which is external to the body. This principle dispenses with the incredible machinery of "association"; and it also reduces the rôle of our motor reactions in giving meaning to present objects. Experience and observation may in this sense be "direct," even though it has been made possible only through a long process of reaction and inference prior to the recognitive act itself. This principle of sensory organization best amplifies and clarifies the fact that so much of our thinking is richly and adequately *recognitive* and imitative without being reflective; as when, e.g., we read appreciatively a long and involved sentence. It makes clearer the doctrine that causation is a matter of perception, rather than of "habit."

The most important practical effect of this underlying *gestalt* doctrine of "direct observation" is the liberation which permits psychologists to accept as scientific data whatever "unbiased seeing" discloses. How far in this direction Köhler is ready to go we see in his account (p. 257) of sympathetic appreciation. The musician's intentions "picture" his cerebral organization at the time, and this picture somehow is projected upon his muscles, and, through disturbances of the air, again projected upon his hearer's physiological processes; and is so reproduced in his hearer's experience! With such assumptions telepathy, inheritance of skills acquired, prenatal influence, and animal magnetism all become theoretically possible, it is true; but this only lays the burden of proof where it belongs—on "direct observation."

Direct observation, then, tells us of those qualitative changes

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which take place in the world of direct experience, and especially of the direct observations that other people make of the same world. And those observations are events in the same objective world. The physical world, on the other hand, is a conceptual construction which we contrive in order to find for these qualitative changes a general explanation. Consequently we search for "constant conditions," under which these processes take place. These may be either the constant properties of elements or their topographic distribution (p. 111). A mechanistic account of events, such as behaviorism offers, supposes the process itself to be constant in quality but changing in amount and direction under these topographic conditions, as in a machine. Here seems to be no dualism,[4] except the dualism of purpose and method which distinguishes a science which, like psychology, examines dynamic processes evident to direct observation, from the physical sciences that postulate an abstract "energy" operating under conditions prescribed by the common properties of elements and by their distribution.

But Wheeler, aiming to escape all "philosophical presuppositions" (p. viii), ignores this account of direct experience and observation, and in consequence commits the very error which Köhler finds common to behaviorist and introspectionist. For the behaviorist erred in supposing that that only in behavior is *objective* and datum for scientific inquiry, which conforms to the current physiology of response; while the introspectionist assumed that that only in experience is valid which conforms to the current physiology of sense-organs. Wheeler, in like manner, assumes that organized dynamic activity as observed in behavior, *must* proceed in accord with current physical and physiological theory (*The Science of Psychology*, pp. 19, 83, 278). "The laws of configuration and of least action imply each other" (p. 83). What could be more extreme than this "philosophical presupposition" that the organizations and configurations directly observed, in their endless undiscovered variety, must *a priori* conform to a mathematico-physical concept.

Among the most valuable of Wheeler's Readings are those (Chaps. XXI, XXII, XXIII) which show how, with a *new* physiology of the ocular and cutaneous sense-organs, the current introspectionist teachings are left with nothing in their pantry; while with a *new* physiology of response (Chaps. XXVI, XXVII, XXVIII) behaviorism has lost its chest of tools! The remedy hereafter is to reverse the general assumption under which American psychology has labored for twenty-five years, and to take facts as directly observed, confident that explanatory physiological concepts

[4] Compare Grace A. De Laguna, *Psychological Review*, May, 1930, "Dualism and Gestalt Psychology."

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will be sought until found; instead of accepting as objective fact only that which conforms to current physiological theory. It is neglect of this underlying *gestalt* assumption that leads Wheeler and Helson to reject Köhler's account of "memory," because it does not accord with the law of "least action"! (p. 278).

We find in Köhler's argument no support for Wheeler's exclusion from psychology of all mechanistic explanations whatever. This exclusiveness results from defining mechanism as a theory that would explain the whole by its parts; whereas configurational or *gestalt* doctrine would derive the properties of parts from the whole. These principles, says Wheeler, are logically opposite and incompatible, and can not both be applied to behavior (p. 266). Since, in fact, they both are applied, it seems we should prefer Köhler's more exact definition of mechanistic theory given above; for that makes mechanist theory a necessary *supplementation* of the configurationist.

There is, however, I fear, in *gestalt* doctrine an underlying weakness which results from the laboratory tradition. In his *Mentality of Apes*, Köhler subordinates each laboratory experiment to a view of the life-career of the individual ape, and places every specific insight in that sequence of insights in which it became possible. In the present work the unit of action is the "single development" which takes place in a given laboratory experiment (p. 394); while the sequence of insights is left until "intelligence" is studied. What is this but repeating the initial error of method which marks Wundtian or laboratory psychology, in contrast with the tradition of Aristotle, Galton, and Binet? The individual life-movement and life-career is, it will be conceded, a "natural" objective "segregated whole" which inherently proceeds from conception to death, and from one stage to another within this sequence. How with elements thus abstracted, misconceived, and distorted can *gestalt* psychology build up an account of "intelligence" maturing?

No summary of Köhler's work can do justice to the charm with which he adapts a theory conceived in German words and atmosphere to the terminology and point of view of American thought. Wheeler's theoretical expositions are unconvincing and redundant; but his illustrative material in both works is varied, well-chosen, and clearly and cogently presented.

LEHIGH UNIVERSITY. PERCY HUGHES.

Beauty: An Interpretation of Art and the Imaginative Life. HELEN HUSS PARKHURST. New York: Harcourt, Brace and Co. 1930. Pp. 336.

This book is more than a treatise on beauty; it is a communication of beauty, the product of a mind exquisitely—femininely—

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sensitive to beauty. It was obviously written with intense emotion and with the numerous works of art analyzed or referred to vividly in mind. No one can read the book without experiencing a similar emotion and possessing a comparable vision of beauty. The following passages give a fair idea, I think, of the quality of the writer's mind and of the style in which it is expressed.

> The experiencing of many other things should be indulged at auspicious moments, not merely for the sake of associations thus preserved but for the attainment of a maximum of sensuous effect. The moon ought never to be looked upon when the sky is altogether empty of clouds. Certain glades in the forest should be visited only when the light is slanting—in early morning or late afternoon. Almost the only justification of the maple and sweet gum is their autumn dress; almost the only excuse for the apple tree is its spring radiance or its winter austerity. Cypresses, poplars, cedars, and pines ought to be viewed in silhouette against the sky, and the oak when its magnificent skeleton is bare [page 77].
>
> Theirs [Miss Parkhurst is writing of "the pale faces of Botticelli's women"] is the burden of such wistfulness as belongs only to the very young, with eyes and lips fair and fresh as the earliest flowers of spring yet melancholy almost with the subdued and gentle melancholy of old age. Upon their blossomy radiance lies like a film of shadow—or as the last bloom of their ripeness—the incredulous comprehension of what their marvelling eyes behold. Themselves lovely, with a loveliness surpassing all accounting, they yet mediate an experience of a beauty even greater than their own—a beauty more potent for being withheld and hinted at only [page 308].

A single thought underlies the entire volume, namely, that art is an image of man's mind, and the supreme means for the reconciling of the basic antithetical elements in his nature. In Miss Parkhurst's own words (page 30): "Through art as through nothing else that life offers there becomes possible a reconciliation of the cravings on the one hand for the uncomplicated, the easy, the regular, the familiar, the permanent, the predictable, and, on the other hand, for the complex, the difficult, the strange, the impermanent, the unpredictable. By devices unbelievedly direct and simple, art accomplishes the swift and easy achievement of this end." To effect this reconciliation is one, if not the chief motive to artistic creation, and both artistic form and artistic substance exemplify this reconciliation achieved. The substance of art consists in the basic, antithetic essences of space and time, motion and rest, light and shade, youth and age, life and death, joy and sorrow, and the like; and its form "combines rhythmic repetition for its conditioning of order and its profound hypnotic effect; but rhythmic repetition constantly interrupted by the arhythmic, and pervaded by just such quality of the unpredictable as would serve to prevent passage from consciousness into oblivion, and at the same time induce the thrill of strangeness in the midst of quietude and security" (page 125).

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This idea is, of course, not new. It was proposed by Schiller in his *Briefe ueber die aesthetische Erziehung des Menschen,* especially Nos. 12 to 15, where he analyzes human nature into two fundamental impulses, the *Stofftrieb* and the *Formtrieb,* and suggests that there exists a third, the *Spieltrieb*—the play or art impulse—through which the first two are brought into harmony. The same hypothesis appears again in Hegel's *Vorlesungen ueber die Aesthetik, Erster Theil, Die Idee des Kunstschoenen oder das Ideal,* where the reconciliation of the oppositions in man's nature is made the common purpose, not only of art, but also of religion and philosophy. But in pointing out that Miss Parkhurst's hypothesis is not novel, I do not wish to detract in any way from the merit of her book. What gives to her work distinction and value—in addition to the charm of her writing—is the completeness with which she applies this idea, testing it in all forms of art, in painting and sculpture, in music and architecture, prose and poetry, in metaphor, in tragedy and comedy. From this book one can judge fairly whether it is or is not a sufficient hypothesis regarding art. And even if one comes to the conclusion that the hypothesis is too simple, one is rewarded by many a delightful page of keen and pertinent analysis of works of art and phases of esthetic experience. In the opinion of the writer of this review, one of the most interesting discussions is that devoted to painting, where Miss Parkhurst agrees with Spengler in viewing this art as many arts, each with its own peculiar beauty and justification. Of special interest also I found her defense of the three dramatic unities, of space and time, as well as of action. In her final chapter, "Art and the Aesthetic Essence," Miss Parkhurst aims to connect esthetics with metaphysics, and ventures the suggestion that art is essentially a metaphor seeking to express the underlying unity of oppositions and diverse planes of existence, which is reality.

DeWitt H. Parker.

University of Michigan.

Archives de Philosophie, Volume VII, Cahier II. Études sur saint Augustin (430–1930). R. Jolivet, Ch. Boyer, P. Monnot, F. Cavallera, B. Romeyer, and R. De Sinéty. Paris: Gabriel Beauchesne. 1930. 272 pp.

This important "cahier" in the *Archives de Philosophie* is published in commemoration of the fifteen hundredth anniversary of the death of St. Augustine and is the work of six very competent Catholic scholars. Not being in any strict sense a symposium, each contributor has felt free to deal with a subject of especial personal interest with the result that the volume discusses such diverse and unrelated themes as "Le Problème du Mal chez saint Augustin," "La

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preuve de Dieu augustinienne," "Essai de synthèse philosophique d'après le XI^e livre de la Cité de Dieu," "Saint Augustin et *Le livre des Sentences*," "Trois problèmes de philosophie augustinienne, à propos d'un livre récent," and "Saint Augustin et le transformisme."

The first and longest essay deals with Augustine's doctrine of evil and is by Professor Regis Jolivet of Lyon, the author of *La Notion de Substance*. While it covers much the same ground as Gerard Philips' recent volume (*La Raison d'être du Mal d'après saint Augustin*, Bruxelles, 1927), it is more concise and gives evidence of even greater acumen. Its value is, however, somewhat impaired by its discussion of the relation between Augustine and Plotinus where the differences between the two are given an exaggerated emphasis and serious injustice is done to Plotinus.

The most significant essay of the volume is the treatment of the Augustinian proof of God by Professor Charles Boyer, whose *Christianisme et Néo-Platonisme dans la formation de saint Augustin* and *L'Idée de Vérité dans la philosophie de saint Augustin* are such splendid models of exact and discriminating scholarship. In the essay Boyer takes exception to the views of Johannes Hessen and others, who like Malebranche and the ontologists, attribute to Augustine the doctrine of immediate and intuitive vision as the principal knowledge of God in the natural order. Although readily granting that there is a knowledge of God in every true thought (since it is only by the illumination of God that we behold any truth) Boyer distinguishes between the light provided by God and the divine nature to the existence of which the light bears constant witness. In addition to this knowledge of God Boyer discusses a second that is gained by a consideration of the hierarchy of being, in which each inferior thing receives from a superior its measure and rule and it then becomes necessary to assume God's existence in order to explain, as its measure and rule, human (and angelic) intelligence. This knowledge of God is, like the first, not a knowledge of *what* God is but merely a demonstration *that* he is.

The shortest essay in the volume is by Professor Ferdinand Cavallera of Toulouse and is a very interesting study of the place Augustine occupies in Peter Lombard's celebrated four books of Sentences. Utilizing the edition of the Franciscans of Quaracchi with its excellent table of citations he has counted 1097 references from sixty-nine different authentic works. Including the references to the writings not regarded as authentic there is a grand total of 1178 as compared with a mere hundred to Hilary, a little more than a hundred to Ambrose, eighty to Gregory, seventy to Jerome, forty-eight to Isadore of Seville and thirty-seven to Bede. Professor

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Cavallera indicates in his essay not only the extent of Peter's obligation to Augustine, but also the more important points at which the Lombard either parts company with the Doctor of Grace or opposes one reference from Augustine to another.

The other essays are of equal interest, but of somewhat less importance. Monnot has attempted a task of synthesis which few will hail as successful; Romeyer has contributed a critical study of Étienne Gilson's excellent *Introduction à l'Étude de Saint Augustin* in which he takes issue with the justly famous Sorbonne professor at several important points; and De Sinéty has discussed with ability and finality the rather stupid question of Augustine's attitude toward evolution.

WILLIAM P. TOLLEY.

DREW UNIVERSITY.

JOURNALS AND NEW BOOKS

MIND. Vol. XL, No. 157. The Concrete Universal: Cook Wilson and Bosanquet: *M. B. Foster.* Why Do We Prefer Probabilities Relative to Many Data?: J. *Hosiasson.* Faculties and Instincts: *C. A. Mace.* Physical Objects and Scientific Objects: *C. E. M. Joad.* Discussion—Mr. Ryel on Propositions: *Richard Robinson.*

THE MONIST. Vol. XLI, No. 1. Causality and Modern Physics: *Henry Margenau.* A Realistic Study of the Foundations of Aesthetics: *K. E. Rosinger.* Value and Evaluation of Beauty: *Gustav Mueller.* Spinoza and Nietzsche—A Comparison: *M. E. Spencer.* Bernard Bosanquet on the Psychical and the Logical Idea: *E. W. Hall.* A Preface to Logic: *E. O. Sisson.* Discussion—Dr. Hasan's Direct Realism: *J. B. Kent.*

REVUE DE MÉTAPHYSIQUE ET DE MORALE. 37e Année, No. 4. Pour le quinzième centenaire de la morte de saint Augustin: L'unité originale de sa doctrine philosophique: *M. Blondel.* Des hypothéses représentatives ou de la logique imaginative: *L. Dugas.* La représentation de l'âme chez les Grecs: Le double corporel et le double spirituel: *M. Halbwachs.* Les rapports de la connaissance et de l'action, d'après John Dewey (à suivre): *E. Duprat.*

REVUE PHILOSOPHIQUE. 56e Année, Nos. 1 et 2. Le sens du rire: *Fr. Pauhan.* De l'expérimentation en science économique positive: *Fr. Simiand.* L'action scientifique: *L. Basso.* Recherches sur la nature de l'acte et sur sa relation à l'expression (fin): *R. Le Savoureux.*

SCIENTIA. Vol. XLIX, N. CCXXV–4. The Expanding Universe: *W. de Sitter.* L'ozone de la haute atmosphère: *Ch. Fabry.* Die Notwendigkeit einer funktionellen Untersuchung der Zellanatomie: *R. H. Francé.* La regressione psichica: *S. De Sanctis.*

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La Revue Philosophique Polonaise (Przeglad Filozoficzny) has issued a special edition containing résumés translated into French of the papers read at the Second Congrès Polonais de Philosophie, held at Warsaw, September, 1927.

Grabman, Martin: Introduction to the Theological Summa of St. Thomas. Authorized translation by John S. Zybura from the second revised and enlarged edition of the original German. St. Louis and London: B. Herder Book Co., 1930. vii + 220 pp. $2.00.

Taylor, A. E.: The Faith of a Moralist. 2 vols. Series I: The Theological Implications of Morality. Series II: Natural Theology and the Positive Religions. (Gifford Lectures delivered in the University of St. Andrews, 1926–1928.) London: Macmillan & Co., Ltd. New York: Macmillan Co. 1930. xx + 437 pp.; xxii + 437 pp. $10.50 the set.

Oljančyn, Domet: Hryhorij Skoworoda. 1722–1794. Der ukrainische Philosoph des XVIII Jahrhunderts und seine geistig-kulturelle Umwelt. (Osteuropäische Forschungen, Neue Folge, Band 2.) Berlin: Im Ost-Europa-Verlag. 1928. 168 pp.

Quercy, Pierre: L'Hallucination. Vol. I: Philosophes et Mystiques; Vol. II: Études Cliniques. (Bibliothèque de Philosophie Contemporaine.) Paris: Félix Alcan. 1930. xxvii + 381 pp.; 559 pp. 40 frcs.; 60 frcs.

Philosophia Perennis. Aufsätze zu ihrer Vergangenheit und Gegenwart. Festgabe Joseph Geyser zum 60. Geburtstag. Herausgegeben von Fritz-Joachim von Rintelen. Band I: Abhandlungen über die Geschichte du Philosophie. Band II: Abhandlungen zur systematischen Philosophie. München: Josef Habbel. 1929. xviii + 1244 pp. 37 R.M.

NOTES AND NEWS

We print the following "Note on the Definition of Good," which we have received from Mr. Donald Cary Williams, of the University of California at Los Angeles:

I do not interpret Mr. Edel's challenging additional "reflections" on the definability of good to be primarily adverse to my own consideration of the subject.[1] The central passages of Mr. Edel's paper expounded one specific definition of good, and this is just the kind of enterprise whose legitimacy I wanted to affirm. (I am not so sure of the correctness of Mr. Edel's definition.)

[1] Donald Cary Williams: "The Definition of Yellow and of Good," this JOURNAL, Vol. XXVII, pp. 515–527 (Sept. 11, 1930).

A. Edel: "Further on Good and Its Structure," *ibid.*, Vol. XXVII, pp. 701–708 (Dec. 18, 1930).

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But Mr. Edel believes, to begin with, that I conceded too much in admitting that good is a quality at all; and, to end with, that I hoped too much when I desired a science of goodness which would help make things good. May I comment on these two points?

(*a*) I only suggested that it is more plausible, and more sportsmanlike for the argument's sake, to presume that Mr. G. E. Moore and I and most other persons are right when we believe we do recognize good things in conscious experience by some unique qualitative hall-mark just as we do yellow things. And I meant to point out that even if we make this extreme concession, we must suppose that the quality good, like the quality yellow, is identical with or correlated with a natural structure, and can be defined and controlled by it. If the definition of the quality by the structure is a "naturalistic fallacy," this fallacy is intrinsic to all human science, and its allegation can not operate capriciously to impugn the scientific status of ethics in particular. I am willing to leave in abeyance, just as Mr. Edel is, the more general problem of primary and secondary qualities.

(*b*) Mr. Edel's doubt of the applicability of a general "science of the good" seems to be based on a conviction that goodness has to be defined and explained all over again in every specific context. This conviction is difficult to reconcile with the fact that Mr. Edel's own definition and explication of the nature of good bravely purports, and quite justly, to be appropriate to all contexts.

The Philosophy Section of the Ohio College Association will meet April 3, 1931, at Columbus, Ohio. The meeting will concern itself mainly with problems in social philosophy, and the following papers will be read: "Human Rights and the Social Order": *H. H. Titus;* "The Relation of Orientation to the Department of Philosophy": *G. C. Enders;* "The Nature of the Social Object": *E. K. Yeaton;* "Professor Jordan's Philosophy of Law": *M. H. Fisch;* "Plato and Romain Rolland—A Discussion of Two Social Seers": *G. W. Beiswanger.* At the luncheon session there will be informal reports of the International Congress of Philosophy at Oxford by Dr. J. S. Moore, and Dr. W. S. Gamertsfelder.

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THE JOURNAL OF PHILOSOPHY

There is no similar journal in the field of scientific philosophy. It is issued fortnightly and permits the quick publication of short contributions, prompt reviews, and timely discussions. The contents of the last six issues are as follows:

Volume XXVII. No. 23. November 6, 1930.

The Dialectical Argument against Absolute Simultaneity. I. ARTHUR O. LOVEJOY.

How "Propositions" Mean. F. C. S. SCHILLER.

In Defence of an Impression. SIDNEY HOOK.

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THE JOURNAL OF PHILOSOPHY

REPORT OF THE THIRTIETH ANNUAL MEETING OF THE EASTERN DIVISION OF THE AMERICAN PHILOSOPHICAL ASSOCIATION

THE myth of Er with which the *Republic* ends offers the disillusioning reflection, as Professor Woodbridge has pointed out, that souls descending from the sky to be born again choose an earthly career less wisely than do those souls coming from the earth for another sojourn in the world. Those who are novices at attending the annual meetings of the Philosophical Association, but who have formulated antecedently ideals of what such meetings should be (whether under the spell of the dialectic of great masterpieces or in an atmosphere of careful analysis of subject-matter and dissection of arguments), may choose as poorly as did the souls descending from heaven in preferring those ideals to the working objectives of these meetings. Nevertheless, it is only honest to report that to one faithful attendant the last meeting of the Association was disappointing. One missed in most of the papers and the discussion centering around them, that eagerness to come to grips with issues, and that persistent albeit courteous pursuit of the argument, which one had believed were the birthright and chief occupation of professed philosophers. It is not unnatural, therefore, to raise again the question of the function and value of these yearly events.

What are the possible objectives which these annual meetings aim to realize? Is it the presentation of novel ideas, prior to publication, to provoke stimulating criticism? Is it the discussion of common problems to eliminate ambiguities in positions taken? If these are the objectives, one is puzzled why so many papers are given a place on the program; why "symposia" are arranged without allowing the participants to make prior examination of one another's papers; why competent critics are not appointed to lead the discussion of special problems. In any event, no one can believe, if these are the objectives, that they are successfully realized. The discussions are too frequently aimless and gratuitous, having no other effect than to save the speaker the embarrassment of an awkward silence; or they are choked off when they are fortunately in full swing because of limitations of time. It is doubtless difficult to make incisive criticisms without the appearance of a breach of good manners; unfortunately, the last meeting has overcome this

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difficulty by cultivating courtesy at the expense of zest for clarity and consistency. The characterization by an eminent English thinker that American philosophers are "too polite" is well deserved. At meetings of physicists and astronomers, some competent critic is sure to rise after a controversial paper in shrewd comment or penetrating criticism; at the last meeting of the Association, this was a rare event.

But perhaps the genius of these meetings lies in other directions. The thinker is proverbially a lonely figure and he may need to argue, as he must think, alone and with an imaginary opponent. These meetings may be devoted to more social objectives, and in these success is more easily and more manifestly attained; the fostering of self-confidence in the younger members of the Association by providing occasions to present papers and enter public discussion; the provision of a mature audience to members whose chief contact throughout the year is with undergraduate minds; the indication of a critical standard of professional achievement; the creation of opportunities to discover the genesis of some contemporary philosophic problems by more direct means than the printed page permits. Harsh judgment on the meeting because of its failures, must be tempered with the acknowledgment that the meeting was a more successful embodiment of these less obvious but no less important objectives.

The printed program was very impressive in its classification of the twenty-one papers under special divisions and topics. It seemed to some a premonition of a future state of affairs when philosophy, like mathematics, will become so departmentalized, each with its technical vocabulary, that not even the philosophical equivalent of a Gauss will be able to follow all the discussions. Happily, that future is not yet, and little specialized knowledge was presupposed for the understanding of papers at any of the sessions. But unhappily, many of the philosophic issues which are agitating contemporary scientists and have been re-animating many philosophers received scant attention. The clarification of ideas involved in recent work in mathematics, physics, biology, and psychology was not the prime concern of most of the papers. To talk in generalities about the philosophy of science, ethics, and esthetics rather than to stoop to painful analyses of specific ideas, is the inalienable delight and prerogative of the philosopher.

The first general session was arranged as a symposium on "logic as a tool of philosophic inquiry." Since none of the participants had the opportunity to consult beforehand the papers of the others, the symposium developed into the presentation of three independent papers of unequal value. The session opened with a graceful ad-

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dress of welcome by President Alderman of the University of Virginia, who invited the assembled philosophers to roam and ramble through the beautiful colonnaded campus as well as through the many corridors of philosophy. Professor Lodge, on behalf of "philosophical" logic then launched into a criticism of traditional logic as preoccupied with verbal matters, and as separating the technique of problem solution from the whole life of the mind. He claimed that the characteristic function of philosophic logic was the exhibition of the system of transcendental categories each of which is to be shown to express implicitly the totality of the mind's creative life. Professor Lodge was not content to remain in one of the corridors of philosophy. For philosophic logic demands the whole truth and nothing less; it is consequently the handmaiden to something "higher" than itself, namely, to the movement of the transcendental dialectic passing in unbroken sequence from the abstract and mutilated categories to richer and more adequate ones. To Professor Lodge the contents of all the chapters of any logic text are suspiciously the same; a well-based suspicion, since for him the transcendental categories are like a beautiful rose shedding their identical fragrance upon each chapter. Finally, he defended the idealistic emphasis on the notion of wholeness and absolute totality, by noting that a proper interpretation of any experience demands such a totality just as the explanation of any mooted passage from the text of Plotinus requires the application of the whole Plotinian doctrine. Professor Smith on behalf of symbolic logic initiated his audience into the A. B. C. of logical algebra and gave an analytical account of the relation of characteristic doctrines of Aristotelian logic to the logic of Boole. To the theme of the symposium he did not address himself. But he showed at great length (to this reviewer it seemed at unnecessary length), that the usual charge made by modern logicians that Aristotelian logic is false since it permits subalternation, rests upon confusing two distinct meanings of inclusion or implication. One of these meanings validly gives the logic of Aristotle, the other the logic of Boole, and Professor Smith showed how, by means of a "dictionary," one meaning can be translated into the other. Hence he claimed we are free to choose either algebra just as we are free to choose one of several alternate geometries. These algebras contradict each other only verbally, because the non-identical sense in which "inclusion" is used in each case indicates different referents for the two symbolic systems. Dr. Hook on behalf of experimental logic presented a closely knit and impressive account of the instrumentalist position. The only novelty he claimed for instrumentalism is that of having given philosophic expression to the fruitful methods of inquiry employed in science.

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The primary subject-matter of logic is therefore the empirically observable inferential methods of men engaged in controlled inquiry. Valid rules of inference he defined with Peirce as those canons which formulate procedures that as a matter of fact have been successful in leading to true conclusions from true premises. He admitted an element of immediacy in knowledge, but denied that there is any knowledge immediately certain, and accused formal logicians of questionable psychology and metaphysics in their advocacy of self-evident propositions. Dr. Hook went on to show that logic has a metaphysical basis since it reflects objective characters of existence in so far as these become involved in inquiry. He pointed out, however, that experimental logic must recognize not only the serial character of existence, but also the specific purposes generating an inquiry. This interweaving of elements of structure and purpose, and the piecemeal, reconstructive function of ideas, were developed in connection with the discussion of the experimentalist theory of meaning, induction, and the *a priori*.

How divergent were the themes of the papers and how unsatisfactory was the "meeting of minds," was the general sense of the discussion which followed. Professor Cohen remarked that the claims made by each of the participants to exclusive truths reminded him of the claims made by "labor," the "middle classes," and "capitalists" each to represent exclusively and without bias the "people," the "public," and the "nation," respectively. Professor Smart surprised many of his listeners in confessing the attraction which Dr. Hook's position had for him. That professed idealists may be wayward in their allegiances was further made clear in his strictures upon Professor Lodge's loose usage of the term "category" and upon his plan to amalgamate logical, esthetic, and psychological inquiries as neither valid nor fruitful. But he declared that implication was the common theme of all logic, and that it was possible to construct a system of propositions so that questions of validity could be decided without manipulating existences. Dr. Weiss challenged pragmatists to indicate the empirical use and meaning of certain propositions in logic, and charged all the speakers with neglecting the distinction between implication and entailment. Professor Cohen spared none of the speakers for their shortcomings. He ridiculed the ineffable philosophy of Professor Lodge in which everything is everything else, and in which nothing can be predicated without error except absolute totality about the absolute totality. He urged that such a totality is never the subject of any significant statement and that in point of fact a disputed portion of a text is clarified not by appealing to an indiscriminate whole, but to a relevant part of the doctrine. Professor Cohen censured Professor

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Smith for not doing justice to the philosophical significance of symbolic logic, and declared that a richer interpretation of the difference between the Aristotelian and Boolean systems is found in recognizing that the latter system is better adopted to the logic of hypothesis, while for Aristotle, who was a classificatory scientist, the notion of a null class has no meaning. Against Dr. Hook he defended the existence of logical intuition and denied that formal validity could be adequately analyzed into frequency of success in getting true conclusions from true premises. But he endorsed very warmly Dr. Hook's eloquent recognition of an order independent of our activity and called special attention to the fact that a pragmatism which defines the meaning of a proposition not in terms of a single event, but in terms of a series of possible events recognizes the function of logic to explore the field of possibility. Professor Montague complimented Dr. Hook on having presented the clearest defense of pragmatic logic of which he was aware, but objected to what he considered the mistaken notion that formal logicians need neglect the material conditions of inquiry in their attempts to discover logical structure. Against modern logicians Professor Montague defended the syllogism in *Darapti* by introducing the idea of the universe of discourse.

Pressure of time prevented adequate rebuttals. Professor Lodge made the disarming admission that he had indeed heard before the criticism that his was an ineffable philosophy, but that it was absurd to believe he was reduced to nothing but an ecstatic adoration of the absolute. Professor Smith claimed his critic misunderstood the point of his paper: logical principles must be absolute invariants, and the axioms of an adequate logic can not be conventions which we may choose at pleasure; nevertheless, it is as postulates that logical principles function, and we organize our experience so that it is in conformity with those principles. Dr. Hook accused his critics of basing their objections upon their antecendent ideas of what pragmatism is, not upon the contents of his paper. He charged both Professor Smart and Dr. Weiss with unintelligibility in referring to propositions independently of every possible existential subject-matter. He claimed Professor Cohen misunderstood the position he took in his analysis of validity; and disclaimed that the characterization of an argument as good, i.e., successful in leading to true conclusions from true premises, had any ethical connotations for the realistic pragmatism of Peirce and Dewey.

To many of those who attended the meeting, the journey was a lesson in geography. Virginia in December meant for some of us warm sunshine, blue skies, and green grass. It was a surprise to be welcomed by a driving snowstorm, and the prospects of a sum-

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mer interlude to a northern winter soon went a-glimmering. There was adequate recompense, however, in the appearance of the ever beautiful campus in its dress of white, and in the pleasant and informing visit to Monticello as guests of the University, before the afternoon sessions. The first paper in the division on the philosophy of science was by Professor Van de Walle, on a fundamental difference between natural and social sciences. In the complete formulation of any true proposition in social science the content of some belief is included as an essential part, while in the natural sciences such reference to beliefs is not involved. This inclusion of belief conditions in social science propositions indicates the locus where the social situation is alterable. At the request of the Executive Committee, Professor Montague presented the paper on causality he had read before the Oxford Congress. He argued that causality, as a quality of enforcement, is a directly experienced datum; and that the existence of causal connection can furthermore be demonstrated indirectly, as the alternative to the infinite improbability of the theory that events in our world are not causally determined. Professor Montague based his argument for causal connection on a theory of probability which regards the probability fraction as a combination of disjunctive knowledge of what the "possibilities" are, with ignorance as to which of them will be actualized. Unfortunately, he did not make explicit the Achilles heel of this theory, namely, the tacit assumptions with respect to the "equal probabilities" of the disjoined "possibilities" and the implied use of the principle of indifference. In reply to a question from Professor Smith, Professor Montague held that the arguments for mechanical laws of nature are in the same logical boat with the arguments for statistical laws. Professor Holmes attempted to dampen Professor Montague's dogmatic faith in causal laws by pointing out that science operates with abstractions; no two events in nature have identical characters, and the "laws of nature" are not completely embodied in any occurrence. Professor Montague agreed with these remarks, but declared that the existence of similarities or partial identities between events was sufficient for the possibility of formulating scientific laws. Finally, Professor Cohen wished to know whether, if a clairvoyant guessed correctly four times out of five, Professor Montague would impute a causal connection in these occurrences, while if she guessed correctly only once out of fifty times he would say no causal laws operate. Professor Montague thought that in the latter case also causal laws would be operative, but that they would determine the guesser with respect to other conditions than those which constitute a correct "guess." Professor Hughes then made an important but much too concentrated analysis

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of the types of laws within a changing world. He distinguished two kinds of models of change: (1) deterministic models, which are adequate whenever consequents inevitably follow upon antecendents, and (2) sufficiency models, which require that one state of affairs will not occur in the absence of certain prerequisites, but is not necessitated to occur in their presence. Each kind may be further subdivided into three types. Deterministic models may be (*a*) Reactions (typical in psychology, physiology, and chemistry), in which the resultant organization occurs as the release of the structure contained in the precedent organization, or (*b*) Mechanical models of motions, in which some element moves without altering the structure or homogeneity of the field, or (*c*) Reductions, in which the result is a mere simplification of the initial stage, e.g., increase of entropy. Sufficiency models may be (*a*) Developmental, in which a series of changes occur, each made possible but not inevitable through its antecedents, or (*b*) Constructional, which assume a general form of activity, e.g., insight adaptation, sufficient in the presence of certain conditions to bring about a synthesis of present factors, or (*c*) Reproductional, involving changes in which a certain structure, evident in the beginning, lies latent and then reappears in a new construction. The paper was too condensed and the hour too late for comments except for Professor Cohen's remark that the task Professor Hughes has set for himself is not dissimilar to attempts in the same direction by Peirce.

The second division, devoted to problems inherited from Greece, began very auspiciously with Professor Woodbridge's characteristically illuminating essay on Aristotle's definition of the soul. Soul and life for Aristotle are coextensive, and organic bodies are distinguished by the kind of life or soul they exhibit. Aristotle did not invoke the soul as a hypothetical entity in order to prove something therewith: it is not something added to the body like the quicksilver Daedalus poured into his figures to make them act; and we must therefore take the recognizable difference between vision and the eye as the type of difference which distinguishes the soul from the body. If modern psychology has cast off the soul, it is not the soul but its definition that has been lost: the soul as Aristotle identified it, Professor Woodbridge showed, is something impossible to lose. Moreover, the soul so defined is cognate with nature, not an alien in it, so that thought and its triumphs can not be separated from and set over against the rest of nature. It is vain, therefore, to seek to discover the human soul through the study of animal life. That which is distinctive of the human soul must be sought in the characteristic activity of man—in science, art, and philosophy; and the deathless quality of the detachment of the soul from the body

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must be identified as a kind of life, not as an occurrence after death. Mr. Kretschmann next sought to define individuality not in terms of the differences between things in essence, property, accidental attributes or composition, but in terms of the concrete experiences which provide clues for distinguishing things on the same level of analysis. Men feel themselves to be different from one another because they feel their experiences to be distinct. Professor McClure then advanced the interesting tentative thesis that the peculiar intellectual character of classical Greek culture may be explained in terms of the race intermixture of the northern Greeks, endowed with excessive nervous vitality, with the Minoans of the pre-Hellenic period, who are known to have been mild and artistic. He supported this theory by pointing to the fact that the greatest intellectual achievements were restricted to those areas where race mixture is most evident. Professor McClure also suggested that many of the characteristic Platonic doctrines and characters (e.g., Plato's impatience with pure art, the mixture of "brave" and "gentle" natures in the guardians, the ethical doctrines of Callicles) could be explained on his hypothesis.

The annual Association dinner took place at the ideally located Farmington Club. Subsequently, the members and their guests adjourned to the high-vaulted lounging room where, in the absence of Professor Singer, Professor Montague read the presidential address with frequent punctuations from the popping of the log fire. In a poetical strain, with curiously involved analogies and slow-moving argument, Professor Singer attempted to indicate the basis for a possible science of religion. The heaven of the religious, like the goal of Sisyphus or Tantalus, has been always something unattainable although the intelligible ground of endeavor. And the scientific ideals of certainty, accuracy, and comprehensiveness are our modern equivalents of such ceaseless quests. But upon this modern quest all may unite, and indeed Professor Singer attempted to show that fidelity to the integrity of the scientific ideal is the formal presupposition of every loyalty and every rational activity. Thus the inquiry into a possible science of religion became in his hands a glowing exposition of the religion of science.

The general session of the second day was devoted to the discussion of three recent books on esthetics by Professors Ducasse, Parkhurst, and Prall. By a coincidence two of the papers gave almost exclusive attention to Professor Ducasse, so that he received the lion's share of criticism. Professor Parker raised four questions to which he found unsatisfactory replies in the books of Ducasse and Prall: (1) Is art essentially communication, (2) Does art aim at beauty, (3) Does art express volitions, and (4) Is there a differ-

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ence between the esthetic and the artistic. Professor Parker attempted to show in detail that Ducasse's negative answers to the first three questions grew out of his failure to recognize the following: the artist is not essentially the amateur, and that form of expression which is *art* and which is built upon a background of socialized technique can not have merely a personal significance; the feelings or emotions with which the artist begins his work (and which may be horror or disgust) are not those which he shares upon completing his creation; certain structural elements, such as harmony and rhythm, are present in all works of art, so that art aims at balance or beauty, not at the ugly; and finally, impulse and wish are the primary springs of action in all human life, while emotions are subsequent to them, so that objects of art embody our wishes rather than our emotions. He went on to claim that Prall's affirmative reply to the fourth question is a consequence of his accepting the fundamental formalist tenet that there is a radical distinction between form and content, the equivalent of Prall's distinction between esthetic surface and depth. Professor Parker urged in opposition that this difference is not so radical nor so final, and that only in so far as esthetic surface is symbolic of wishes, etc., does it have esthetic value. Mrs. Gilbert raised the question whether differences in esthetic taste presuppose a common standard of value, and found little difficulty in exhibiting in each of the three books contradictory tendencies. While their authors profess to deny the existence of absolute criteria with which to compare works of art, none are altogether successful in avoiding such standards. Thus Miss Parkhurst's atomism of values is balanced by her suggestion of a pyramid of appreciation on the basis of which an ideal hierarchy of arts may be erected. While on the one hand Mr. Prall denies that beauties may be compared, on the other hand he justifies their being rated by a person of catholic tastes and technical knowledge. Mr. Ducasse was characterized as the busiest and merriest of esthetic logicians: beauty for him is incommensurable and is always a function of the observer, although his esthetic analogies and analyses invite the imputation of objective criteria. Professor Gilbert concluded with the thesis that although we may as a matter of fact begin with perceptions of individual pleasures, no pleasures can stand alone: we are led on to entertain the existence of an over-personal force, of an objective world, in the momentary personal criteria which even sceptics admit. As his share of the discussion, Professor Munro contributed a highly amusing philosophical extravaganza. In the form of the ancient fable of Perseus adventuring forth to slay Medussa (Beauty with a capital), he took to task the failings of the books under survey. While the pointed humor

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of the fable can not be reproduced here, its attack was upon esthetic-ians who ignore or dismiss concrete esthetic material for the sake of dead issues, disputations over definitions, or generalizations incapable of verification. Professor Ducasse as the stone blocking the progress of Perseus received the severest blows, while Miss Parkhurst as the servitor at beauty's altar, saved from ecstatic frenzy by a portrait of John Dewey, escaped with least injury. Dr. Buermeyer made some of the most telling points of the session in his *Auseinandersetzung* with Professor Ducasse. He traced the latter's sharp separation of the esthetically valuable from the beautiful to the nihilistic hedonism which Ducasse shared with Santayana, and urged that a judgment or preference that can be defended by no argument has little logical value. The conception of art as an expression of emotions which have no reference to anything beyond themselves, was severely criticized on the ground that while an emotion may often *seem* to be caused by nothing or mean anything, it does not remain without reference upon *inquiry*. Moreover, what we seek and believe so colors our emotional life, that it is impossible to sustain an emotion in isolation from the rest of a man's life. If art is nothing but expression, and since the question whether the work of art does actually express what its creator intended, can be answered, presumably, only by the artist himself, Ducasse's position reduces to a complete critical nihilism. But is it not legitimate to evaluate the artist's purpose, or to estimate the significance of the imagination out of which the work grew? And can the artist himself tell us what he wished to express, since it is only rarely that we know what it is we do mean or feel on any particular occasion? Thus Dr. Buermeyer entered the wedge for the position that the study of the occasion and relevance of artistic expression are integral parts of the critic's work, and that the sharp break between art and beauty to which Ducasse commits himself can be healed.

Both Miss Parkhurst and Mr. Ducasse were in the audience and replied to their critics. Miss Parkhurst acknowledged the truth of Professor Gilbert's criticism, but urged in her own defense that the conflict between the attempt to maintain a theoretical scepticism and the inescapable dogmatism of our emotions and actions, was a recurrent event in all conscious life. She declared that although she could give no adequate theoretical defense for her judgment, yet she would be willing to stake her life for the proposition that Greek sculpture of the Sixth Century is superior to that of the Fourth. Dr. Robinson found Miss Parkhurst's predicament "intolerable," and argued that scepticism must be abandoned. For he saw no *a priori* reason against the existence of self-evident knowledge in esthetics as well as in morals, and believed that by sifting educated

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opinion such self-evident knowledge could be found. Professor Cohen, in sharp retort, made a warm defense of Miss Parkhurst's position: there is no contradiction in holding to an objective relativism of values and at the same time insisting on the right to fight and die for one's own cause. Indeed, he urged, it is the highest form of gallantry to recognize that one's opponent may perhaps be right, and yet maintain the integrity of one's own principles; to refuse that recognition leads to a smug dismissal of actual uncertainties. And he ridiculed the appeal to educated opinion in art and morals as a futile gesture, since education is too often no more than persistent indoctrination. Professor Ducasse in his reply thought the differences between himself and Professor Parker were not as great as they seemed. Both were in agreement upon the thesis that art is "expression for its own sake," although art *may* have a communicative function as well. Mr. Ducasse agreed that the final emotions of the artist may always be pleasurable ones, but urged that the feeling of pleasure arises from the pleasure of successful creation, and not necessarily from the pleasant nature of what the art object expresses. He was unable to reply to the positive suggestions of Mrs. Gilbert and Mr. Buermeyer until he saw them in "black and white." He believed, however, that the existence of a single instance of an emotion without an objective reference decided the issue between himself and Dr. Buermeyer in his own favor. Dr. Munro could be answered, he thought, only by another parable: a small boy, pockets bulging with questionnaires, symbolic of the scientific esthetician and equipped with the latest measuring appliances, is busy measuring whatever his eye alights upon, although he has no notion of a theory or problem; when we ask him what he is doing or criticize his lack of theory, he replies by handing us a questionnaire.

The first division of the afternoon session was devoted to ethics and the philosophy of religion. Professor Dotterer challenged the fashionable doctrine that the genuinely valuable must be permanent, and traced its prevalence to the desire to prove by its means the existence of God and immortality. The arguments usually produced in its support Professor Dotterer found inadequate, and he urged that the empirical evidence in favor of transitory values be taken seriously. Professor Swabey in her very well received paper acknowledged that while in its earlier career the democratic search for equality was largely political, it has now shifted to the economic sphere. But she found immanent difficulties and contradictions in the philosophy of communism, although she recognized the force of the communistic indictment of hereditary private property. Mrs. Swabey concluded with suggestions to abolish hereditary privilege

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without at the same time making of the individual nothing but the tool of society. Professor Horne attempted an evaluation of the religious element in Dewey's philosophy by discussing what he thought were the limitations of Dewey's interpretation of institutional religions. Dr. Hook declared he failed to recognize Dewey's philosophy in Professor Horne's exposition, and characterized the position of Professor Horne as a will-to-believe, Jamesian philosophy incompatible with the pragmatism of the instrumentalists. That Professor Dewey is not half so well known as some of his admirers believe, unless indeed he is expected to perform a miracle of longevity, became evident from a question put to Professor Horne whether he did not think that just as Comte when he grew older forsook positivism for the religion of humanity, so when Dewey will grow older he too will abandon his humanistic religion for a religion of mysticism. Finally, Dr. Marti classified contemporary theologians into (1) humanists, who find in religion a shared quest for the good life, (2) apologist, who admit the passing of the old concepts of God and try to concoct modern ones, and (3) the revelationists, who find themselves addressed, as of old, by God. For the revelationist, canon and dogma are essential, and Dr. Marti contended that he alone stays on religious ground. He accompanied this thesis by an exposition of the theology of Karl Barth.

The second division was devoted to problems of logic. Professor Cohen read a devastating attack on the usual distinction between induction and deduction, and showed that in so far as a rational process is involved in induction it must submit to the canons of valid inference. The popular view that induction is a special form of argument arises from the frequent suppression of the premises which validate the so-called inductive inference, and from confusing "reasoning" as a psychological or temporal process with the logical or evaluating function. The difference between induction and deduction lies in the different evidential value of the remises which support the respective arguments. Professor Cohen illustrated his contention very effectively by the history of spectroscopy from Balmer to Bohr, and showed that as the material evidence becomes more comprehensive an "inductive" science is metamorphosed into a "deductive" one. He concluded with a vigorous attack on the beliefs that induction is a method of discovery while deduction is that of exposition, that universal propositions are necessarily obtained by abstraction from particulars, and that enumerative universals are the only valid type of propositions in science. In reply to Dr. Weiss's objection, that the paper did not discuss the process by which we pass from vague to definite knowledge, Professor Cohen declared he was not concerned with getting peda-

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gogic rules, but with the logical problem of weighing evidence. To a question whether the real business of thought did not consist in obtaining the proper kind of disjunctive propositions as premises for an inquiry, Professor Cohen declared he was not interested in the psychology of thought, but rather with the logical character of Mill's canons. Professor Buchanan in his paper on the logic of analogies, believed the great contribution of Plato to have been the discovery of certain logical matrices or scheme of analogies, which became the source for subsequent mathematical and physical systems and techniques. He showed how the doctrine of elements, of the syllogism, the doctrine of ratios, the theory of physical measurement, were illustrations of the same logical pattern. He suggested that analogical reasoning is the essential mode of modern thought as well, and illustrated this by the principle of duality in projective geometry. Professor Cohen remarked that Dr. Buchanan's paper threw some light on the question why the Greeks never developed algebra. In modern algebra a quadratic equation has two roots, thus allowing for some indetermination in the answer; but the Greeks eschewed the arbitrary and used therefore a technique in the form of analogies or proportionals which avoided it. Mr. Jackson, in an address bristling with technical refinements of phraseology, discussed the distinction between connotative and non-connotative terms. He wished to state the minimum condition which would justify the study of the nature of what certain technical terms denote, without inquiring whether they denote anything in any sense actual. This condition is that "an unfulfilled hypothetical may be true," which if conceded vindicates the definition of a symbol as a sign with a conventional signification. Hence the distinction between connotative and non-connotative terms appeals to the convention by which the terms are instituted. Both Professors Smith and Cohen charged the speaker with neglecting to notice that terms are terms only in propositions, and have significance only in virtue of the judgments into which they enter. In reply to a suggestion by Professor Swabey that proper names are names of existents and therefore have the minimum meaning that they imply existence, Mr. Jackson said we undoubtedly ask frequently whether Socrates does exist and that therefore the proper name does not imply existence. Dr. Weiss expressed the growing discontent with traditional epistemology in urging that the task of epistemology is not to explain knowledge *überhaupt*, and that all epistemologies must take for granted the unanalyzed common-sense world both as points of departure and as points at which verification of epistemological theories must be made. The perceiver and perceived can be studied in relation to each other, since according to Dr. Weiss there is an immediate recognition of

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the difference between the imagined and the existent object; consequently, the different contributing factors to the known object can be dissociated. This indubitable feeling of duality distinguishing the perceiver from the perceived is the cornerstone for what Dr. Weiss, very strangely indeed, called the "beginning of epistemology." Professor Cohen remarked that while he was in sympathy with the observation that we must start with the common-sense object, an explanation ought to be given why traditional epistemologies go off on a different task. This explanation he found in the fact that when we wish to be precise about the observed objects, we discover the common-sense categories to be too vague, and we therefore turn to more analytical data for aid.

This report of the Association meeting would be woefully incomplete if it did not testify to the warm hospitality of the University of Virginia, of the Farmington Club, and especially of the members of the Colonnade Club. The services of Mrs. Buchanan and Mrs. Balz in making their guests feel at home and at ease can not remain off this record, however unofficially and unostentatiously those services were rendered.

ERNEST NAGEL.

COLUMBIA UNIVERSITY.

COMMUNITY AS THE KEY TO EVOLUTION

A PATRONIZING reference to idealism as "vestigial supernaturalism" which I came across in a recent review provoked reflections upon the present position of idealism particularly in relation to instrumentalism, which in its different varieties seems to dominate the American philosophic field. These reflections were tinged with personal reminiscence, since in earlier years I found the neo-Hegelian argument quite convincing, but later was shaken in my allegiance to idealism by the attacks made upon it by James, Dewey, and A. W. Moore, attacks which idealism was unable to repulse. But as a philosophy pragmatism appeared to my mind as equally defective in essential respects, and I was finally led to adopt a view which had points in common with both idealism and pragmatism while avoiding the principal shortcomings of each. I shall have to confess, however, that I have not had great success in persuading others that the truth, philosophically-speaking, lies between these two theories or, as I should prefer to say, in a view which does justice to the truth of each because it is a more successful synthesis of discrepant and contradictory features in the world of our experience.

Why does idealism (I have in mind "modern" objective and ab-

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solute idealism) fail to convince? Certainly not because it is "disguised theology" or sophisticated supernaturalism. In contrast with such offhand and cocksure pronouncements is Bergson's penetrating observation that radical finalism and radical mechanism amount to nearly the same thing, and James' criticism of absolute idealism as leaving the ordinary man just as helpless in the face of natural law and cosmic process as the most thoroughgoing materialism. Idealism is unconvincing, not because it ignores physical fact and natural law: the existence of the one and validity of the other are upheld at every point in all versions of objective idealism. But rather because it fails to take due account of an outstanding feature of the human reason, a feature of which we have most direct and conclusive experience. This is the power of original invention and free experiment possessed by human individuals and exercised in the reconstruction of their external environment.

Pragmatism does ample justice to this feature. Intelligence it understands as an instrument of adjustment and adaptation developed by living individuals in the course of their interaction with their natural environment. Called into play by situations of practical difficulty which arise in the experience of individuals it discharges its function by projecting in imagination plans or programmes of action which promise to liberate and harmonize those factors whose conflict had created the practical difficulty. Since the ends of intelligence are always programmes of action, their truth can be ascertained only by practical experiment: when acted upon, do they introduce greater variety, freedom, and harmony into present activity? Neither facts nor values, therefore, are fixed, ready-made, absolute; both are discovered by free experimentation on the part of human individuals. Facts are conditions which the individual finds he must reckon with and respond to if he wishes to extend the scope and efficacy of his own action; values when cognized are the potencies of objects at once to liberate and to harmonize competing activities.

Why is pragmatism also unconvincing? Principally because, despite its preoccupation with the conditions of man's social evolution, it disregards or neglects an essential factor in the intelligent control of human behavior—what may be called *social acknowledgment* or *intelligent community*. Essential to the outlook of intelligence as we human individuals have experience of it is acknowledgment of an identical intelligence with a similar outlook in other human beings. Recognition of a community of intelligence between himself and every other sane human being is inseparable from the exercise of reason by any human individual. From its beginnings, individual intelligence expresses itself in the socially devised media

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of speech and gesture and custom, but the community of human intelligence is the one and indispensable condition of these modes of social interaction becoming forms of social intercommunication.

Thus the community of intelligence enters as a determining factor into the adjustments which intelligent individuals make to their environment, physical and social. It has decisive influence upon their judgments of value. While all acts and agencies which liberate and harmonize the activities of individuals in their immediate social and physical setting no doubt possess value, still this value is often subjective and relative. Objective value, universal or absolute value, attaches only to those acts and agencies which contribute, however slightly and indirectly, to the integration and organization of the activities of all individuals in the universal social community. When in the field of thought we pursue truth, what we seek is those correlations of fact which possess universal validity because capable of verification by all individuals who fulfill the relevant conditions; when in the practical field we seek goodness, what we desire to effect are those adjustments and adaptations of behavior which promote universal human well-being; when in the esthetic field we desire beauty, what we seek are those patterns of color and sound and movement which, because of their universal significance, can be generally communicated and are capable of being appreciated and enjoyed by all. The community of intelligence is both more comprehensive and more enduring than the experience of any individual. Hence the values involved in its promotion by succeeding generations can be realized not only by original contribution, but also by participation. When the individual gains the habits of skill required for the intelligent employment of speech-forms, mechanical appliances, industrial methods, social customs, and political procedures he can, if he will avail himself of his opportunity, realize by participation the universal values of common insight and mutual understanding, of coöperative endeavor and imaginative sympathy, to which these products of social culture are instrumental. Invention and participation are different, truly; it is strange and unfortunate, however, that they should be regarded as alternative and exclusive methods. Such an antithesis is certainly a false one; each of the two is necessary to the other and both are indispensable factors in social progress.

It is evident that intelligence possesses two distinct and opposing aspects, one of which is stressed by idealism and the other by pragmatism. The two are (social) inclusiveness and universality, and (individual) originality and invention. Now when we take into consideration the fact that matter also possesses a dual character, we are in a fair way to understand how mind and matter, teleology

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and mechanism, coöperate functionally in universal evolution. On the one hand, matter is the principle of externality and independence assigning to every physical event its determinate and exclusive position in the space-time world. But matter is equally and on the other hand the principle of uniform interaction guaranteeing the continuous repetition of cycles of causal determination. The dual nature of each of these factors, mental and material, makes possible complete reciprocity of function between them. Here I believe we have the pivotal fact which explains the relation of teleology and mechanism in universal evolution. Mind is the factor of inclusive unity and original creation; matter is the factor of external independence and uniform interaction. Through the creative activities of countless associated individuals the possibilities resident in existing objects of contributing to one comprehensive and articulate life are envisaged and expressed. Through the uniformity of physical law these original creations and achievements are conserved and made universally appropriable.

Thus we conceive of evolution—in terms of growing community. Each individual member receives by physical transmission the data relevant to its own position in the space-time order and to the nature of the world of which it is a part. The data thus received, it interprets (according to its degree of intelligence) in terms of permanent and universal meaning, but from a point of view unique and original. This novelty of interpretative outlook and response brings to light new and valuable possibilities of contribution on the part of existing objects to the organization and enrichment of the Whole. These possibilities the individual explores and actualizes through modes of interaction initiated in the physical system by which they are transmitted to others and help to determine the nature of the world as it presents itself to them.[1] In truth, then, community is the principle explanatory of evolution. Not unity, not even the unity of the "concrete universal"; for this is a logical unity, of a number, an indefinite variety of particular items all embraced and organized within the scope and meaning of a general concept. But the unity of the world is the unity of a society of interacting individuals which possess in varying degrees the power of original contribution to the universal life in which all participate.

[1] My philosophy of evolution is similar in the main to that of Whitehead as completely formulated in his *Process and Reality*. I am deeply indebted to the writings of Dr. Whitehead and have doubtless been influenced by them in the expression which I give to my view. But the view itself was reached quite independently as the result of a study of the implications of human association. As such it was anticipated in an article "The Basis of Human Association," this JOURNAL, Vol. XVII (1920), pp. 421–430, and pretty fully stated in an article "The Metaphysical Implications of Human Association," *Phil. Rev.*, Vol. XXXVIII (1929), pp. 54–68.

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The conception of community gives us the best, in my judgment the only, solution of the ineradicable antinomies of mind vs. matter, teleology vs. mechanism, freedom vs. necessity. It does this by suggesting a coherent and tenable view of the world which makes place for these factors in their apparently irreconcilable opposition, as means to the welfare and progress of the Whole. In order that the process of evolution shall result in the maximum of expansion and enrichment of the Whole, it is necessary that there should be the greatest possible scope for original invention. This can be gained only by multiplying to the extreme limit the centres of free creation. Thus a differentiation is required of the whole into an infinite variety of independent and self-centered units. But such independence of the parts is fraught with difficulty and danger. The difficulty is that the individual units can maintain a self-centered life only when cut off from the Whole. And the danger, of course, is that they should lose their organic connection with the Whole.

The difficulty in the case is overcome by the fact that the activity of individuals takes place in a medium which, while it is external to the agent as well as to others, is also and to a like extent a field of action common to all. The consequence is that the individual formulates his own point of view with the subjective outlook and preferences which it involves, in constant interaction with the world, thereby appropriating through language and literature, mechanical appliances, political institutions, and other products of social culture, the achievements of his fellows. (The situation is described as it discloses itself at the human level, but the same factors are present, less explicitly defined, at lower stages of existence.) He in his turn can construct his plans and accomplish his purposes only through physical agencies (such as speech, manual dexterity, emotional-esthetic expression, along with the processes of change with which they are linked in the external world) which communicate his insights and inventions to others and thus make them a common possession. So far as the danger above mentioned is concerned, we recognize on the one side that this differentiation of the Whole is the source of that antagonism and conflict which has produced all the evils which have accompanied evolution and darkened the pages of human history. But we see, on the other side, that this differentiation, accompanied by intercommunication through physical agencies, alone makes it possible for individuals to contribute their utmost to the enrichment of the Whole while at the same time enjoying and appreciating the achievements of their fellow-contributors.

University of Manitoba. H. W. Wright.

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BOOK REVIEWS

Voltaire and the English Deists. NORMAN L. TORREY. With chronology, bibliography, and index. New Haven: Yale University Press. 1930. x + 224 pp.

In preparing this study of Voltaire and the English deists, Professor Torrey spent a summer in Russia examining Voltaire's private library, which is now a part of the Public Library in Leningrad. Professor Torrey has noted which books of the English deists were read most thoroughly by the French *philosophe,* has studied the notes and the comments written on the margins of the leaves, and has carefully traced the re-appearance of these English ideas, by quotation or by paraphrase, in the works of Voltaire himself. As a result of this research and a scholarly acquaintance with the rest of the pertinent material, Professor Torrey has produced a work on the English influence on Voltaire in comparison with which the previous efforts of such men as A. S. Hurn and E. Sonet must seem amateurish and inadequate.

It seems that the influence of individual English deists upon Voltaire can be traced with some degree of accuracy. Apparently from Tindal he got his moral argument against the Bible, and some of his emphasis on natural religion and on the light of reason. From the radical Peter Annet he took ideas for an attack on St. Paul; and Professor Torrey suggests that Annet's *David, the History of the Man after God's Own Heart* supplied valuable suggestions for Voltaire's drama of *Saul.* Conyers Middleton was read carefully by Voltaire, and was the source of a variety of his ideas—on the miracles, on the martyrs, on the Church, on the lack of originality of Jewish customs, and on the general weakness of the authority of the Scriptures. And it is interesting to note the influence of Anthony Collins on the metaphysical ideas of Voltaire—in shaping his ideas on the soul, on determinism, and on moral responsibility. If it is true, as Professor Torrey contends, that the writings of Collins are responsible for converting Voltaire from a belief in the freedom of the will to a belief in determinism, then an interesting point in historical study has been illuminated.

Voltaire's favorite among the deists was Woolston. Voltaire loved his method of ridicule, his violent anti-clericalism, and his charming habit of writing prefaces to Bishops at the beginnings of his impious works. Indeed, there are direct borrowings from Woolston in nearly every work that Voltaire wrote against Christianity. It was the attack on the miracles which Woolston had done to perfection. As evidence of his pleasure in this material, Voltaire used the miracle of the Gadarene swine twenty-six times, the miracle of

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the fig-tree twenty-four times, and the miracle of Cana over twenty times. This was one Englishman who was so delightfully naughty that Voltaire loved to quote him in the original. After giving Woolston's account of how Jesus "made punch" at the marriage of Cana, so that everybody "got drunk," Voltaire shakes his head in a mockery of pious deprecation: "These are the very words of Thomas Woolston. Every Christian soul is seized with indignation at them. . . . It is with regret, with trembling, that I relate these passages." However, there were some passages in Woolston that not even Voltaire dared to relate.

Not the least valuable part of Professor Torrey's analysis is his demonstration of Voltaire's ignorance of the works of many of the important English deists. Voltaire did not know Herbert of Cherbury, nor Blount, and he invariably misquoted John Toland. Indeed, there is no evidence that he ever read Toland's *Christianity Not Mysterious*. Chubb, also, was a decidedly minor influence. But most interesting of all is the discovery of the negligible influence of Bolingbroke upon Voltaire. This is a happy legend that Professor Torrey has exploded on a previous occasion. To be sure, Voltaire read Bolingbroke very thoroughly, but, in his own phrase, he found little fruit in the midst of an abundance of leaves. Upon a careful study of the *Examen Important* attributed to Bolingbroke by Voltaire, but written by the latter, we find the ideas of Woolston, Middleton, Annet, and Tindal, but not the ideas of Bolingbroke.

Voltaire's use of Bolingbroke's name was a matter of clever strategy. This philosopher of the rising middle classes, whose tragedies and *contes* testify to his ardent dislike of the nobility, was not unwilling to use the nobility as a leverage against his other principal enemy, the Church. As Professor Torrey shrewdly observes, what Voltaire wanted from Bolingbroke was, not his ideas, but his title of *Milord*. If an attack on religion came from a source that was respectable and socially above reproach, then so much the better! It was the same motive that led Voltaire to attribute the ideas of Peter Annet to a M. Hut, or Huet—a mythical person, whom Voltaire later elevated to the rank of Member of Parliament. Cobblers and schoolmasters and middle-class divines might be good enough to be the standard-bearers of the deist movement in England, but in France Voltaire saw to it that these gentlemen had a little more social prestige. In fact, he was keenly aware that an idea, to be effective in French society, needed an air of good breeding more than it needed an air of truth. Accordingly, when he attacked the prophets, he did not follow Collins' method of showing that their prophecies did not come true: these prophets were not good *mondains*; they were not civilized men of the world; they lacked good

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manners; they were savages, barbarians, *Welches*. It was enough to point out that Ezekiel ate his bread larded with dung. Let *Madame la duchesse* consider what it would be to have such a fellow in to her dining room! It was not the lying predictions of the prophets that would ruin them. It was their bad table-manners!

Indeed, as Professor Torrey continues his analysis, we begin to see more clearly how Voltaire merged the scholar into the literary artist and the clever propagandist. To be sure, he studied his sources carefully. This we know by the markers in his books, and by the stickers—bits of paper pasted over interesting passages to be referred to later. Professor Torrey has also indicated how Voltaire made careful use of footnotes, how he amplified his material by researches in the learned works of Van Dale, Grabe, Fabricius, and Fleury. But when these ideas flowed off the pen-point of the French writer, they assumed literary form: a coarse jibe or a ponderous jest was caught up in a deft *bon mot*; a pedantic debate among scholars became a pleasing drawing-room anecdote. This is well illustrated in Voltaire's handling of the attack on the Immanuel prophecy. Collins proved his point by quoting the authorities, giving a long list of them, beginning with Grotius and Huetius, and winding up with Whiston. Voltaire threw the whole odium of the attack upon the Jews, thus trifling satirically with a popular racial prejudice. That stubborn and stiff-necked race! . . . They simply will not admit that the prophecies of the Old Testament prefigure the coming of Christ. "We have refuted their explanation a thousand times in our modern languages," says Voltaire very sadly: "we have used violence, the gibbet, the rack, and the stake; but they won't give up yet!" Now what is good, pious, Christian scholarship to do in the face of such unregenerate pig-headedness?

Voltaire took all this material from England and built it up into a splendid legend for the deist faith. Only, these bright minds from the island across the channel fought their great fight for Truth, not so much by Faith, as by Nature, by Reason, by Humanity—and by dint of being elegant English *milords* and statesmanlike Members of Parliament. It is no wonder that, surrounded by such a "cloud of witnesses," Voltaire was not able always to distinguish clearly among them, that he sometimes attributed the ideas of one to another, and even occasionally shifted a whole flock of ideas to the credit of some valiant writer who might not have a very good intellect but was blessed with a lofty title. The most flagrant instance of this indiscriminate use of sources is when he refers certain ideas to Lord Bolingbroke, and means, not the original Bolingbroke himself, but the fictitious Bolingbroke of the *Examen Important*, who was a creature of Voltaire's own constructive intellect, a compound

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of the most effective elements in several other deists and several learned scholars. To Voltaire, all these English deists might have the savage humor and fierce spirit of a Woolston, the elegant breeding and lordly manner of a Bolingbroke; they were all *incrédules;* they were all Voltaire!

Professor Torrey's study of Voltaire's relationship with the English deists is a thorough and scholarly performance. It takes first rank among those books that have attempted an analysis of this subject. And it may be classed as one of the few out of the thousand odd pamphlets, essays, and volumes on Voltaire which throws a genuine light on his life and work.

ROBERT E. FITCH.

NEW YORK CITY.

Yoga Philosophy in Relation to Other Systems of Indian Thought. S. N. DASGUPTA. Calcutta: University of Calcutta. 1930. x + 380 pp.

Dr. Dasgupta, Professor of Philosophy in Presidency College, Calcutta, and at one time Lecturer in the University of Cambridge, is known in this country partly through his visit and his lectures here in 1926, partly from his books, particularly his semi-popular *Hindu Mysticism* and his learned *History of Indian Philosophy.* The volume under review, though published in 1930, was the first of Professor Dasgupta's books to be written, having been prepared eleven years ago as his doctor's thesis for the University of Calcutta. Chapter VII of his *History of Indian Philosophy* is in part based upon this book, hence the general thesis which his new book supports was announced by him in 1922. This thesis in itself is not very striking, and will not arouse much opposition among Sanskrit scholars; yet it is well worth stating. It is, namely, the rejection of a fairly common notion that Yoga is in itself only a form of psychical discipline and a belief in a personal god tacked on to the preëxisting Sankhya philosophy. Dasgupta's view is that Yoga is properly called a philosophy, and that the truly philosophical teachings embodied in it are not simply borrowed, but were an intrinsic part of Yoga development. "My supposition is," he writes, "that we have lost the original Sankhya texts, whereas the systems that pass now by the name of Sankhya and Yoga represent two schools of philosophy which evolved through the modifications of the original Sankhya School." Thus it would be better not to speak of Sankhya and Yoga, but of the Kapila Sankhya and the Patanjali or Yoga Sankhya. "Yoga did not borrow its materials from Kapila Sankhya, but being itself a modification from the original stock, has as much right to pass by the name of Sankhya as the Kapila Sankhya."

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This problem of the relation of the Yoga to the Sankhya will perhaps be of interest only to technical students. To the reader whose interest is chiefly philosophical the value of Dasgupta's book will be its clear and sympathetic exposition of the Yoga-Sankhya philosophy: its first beginnings in the Upanishads, its development in the centuries just before and just after the Christian era, its treatment of physical nature and its interpretation of the various sensa as physical rather than psychical, its doctrine of the self, the Sankhya atheism and Yoga theism, Yoga psychology, ethics, and methods of concentration. The deep Sanskrit scholarship and the wide reading in Western philosophy with which Professor Dasgupta is equipped is a constant source of astonishment to the reader, and the author's ability to translate Eastern thoughts into Western terms makes this book one of great helpfulness to the Western philosopher. Only occasionally has Professor Dasgupta gone perhaps a bit too far in his attempt to assimilate Indian ideas to European categories. Though it is not true that "never the twain shall meet," it still is a fact that "East is East, and West is West," and not a few popularizers of Eastern thought slur over very fundamental contrasts in point of view, method of thought, and fundamental concepts. Dasgupta's *History of Indian Philosophy* was peculiarly free from this natural but misleading tendency. Not quite so much can be said for the book now under review. Yet slips of this kind are rare, and the book may be commended both for its sound scholarship and clear exposition and for its real philosophical insight.

JAMES BISSETT PRATT.

WILLIAMS COLLEGE.

The Book of Diogenes Laertius; Its Spirit and its Method. RICHARD HOPE. New York: Columbia University Press. 1930. Pp. 242.

The *Lives and Opinions of Eminent Philosophers* has figured so prominently in the writing of histories of philosophy that it is a matter of prime importance to know what kind of man its author was, how he conceived of philosophy, what his purpose was in writing his book, and what the interests that determined the selection and arrangement of his material; for the answers we give to these questions necessarily determine what sort of reliance we shall place upon his account of the philosophers. These are the questions whose examination forms the core of the book before us, and Mr. Hope gives us an interesting picture of an industrious and erudite but exceedingly uncritical "scholar," convinced that philosophy was a vital enterprise and a moral influence, but with so little grasp of philosophical issues as to be satisfied with a classification of philosophers

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into dogmatists and sceptics, and into those who left writings and those who did not. This picture of Diogenes Laertius is based in the main upon a laborious examination of the contents of his book, with especial attention to the number and variety of the sources cited and the manner in which they are used. Except for some perfunctory and rather questionable generalizations about the philosophical interests and traditions of the Hellenistic period (pp. 211–216) this is a careful piece of work.

On the question of Diogenes Laertius' reliability Mr. Hope is inclined, I think, to be too severely sceptical. The chief charges brought against him may readily be admitted. He probably used compilations instead of consulting the philosophers at first hand. He was probably unable to distinguish between expert and inexpert testimony on matters scientific or philosophical. He was incapable of understanding the thought of most of the men he treats of. He approaches their doctrines with certain opinions of his own, and arranges them under rigid and artificial rubrics, instead of trying "to discover the ideas that were basic in their thinking or to trace the development of such ideas in their reasonings." All this Mr. Hope has shown in convincing detail. But are we quite justified in saying that "the compilation of Diogenes Laertius cannot be regarded with much seriousness"? Or that "an authentic history of Greek philosophy cannot be written" (p. 208)? As to the first point, Diogenes Laertius can, of course, only be taken seriously if he is taken to be what he is, not a competent critical historian of ideas, but an earthen vessel containing possibly much treasure; and as critical history is still in the process of perfecting its instruments of investigation it is too early to say that the attempt to separate the treasure from the rest the vessel contains is doomed to failure. And on the second point, through a natural error of perspective due to preoccupation with his particular author, Mr. Hope seems to exaggerate the extent and misconceive the nature of the reliance that historians of philosophy have placed on Diogenes Laertius. He forgets that we also have Xenophon, Aristotle, Theophrastus, Cicero, Seneca, Plutarch, Hippolytus, Galen, Stobaeus, and others, not to mention a respectable number of primary sources; so that if Diogenes Laertius' book had been lost it is probable that our conception of Greek philosophy would in its main outlines be much what it is now. But these questionable conclusions upon the larger issues involved in no wise affect the value and interest of the positive part of Mr. Hope's inquiry, and this is a book which throws a clear and welcome light into a very dark corner.

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Philosophy of Value. An Essay in Constructive Criticism. LEO RICHARD WARD. New York: Macmillan. 1930. x + 263 pp.

We have here the introduction of Saint Thomas Aquinas into the controversy concerning value, but of Saint Thomas, as it were, in modern dress. For the author gives evidence of his belief that the Scholastic view, in order to be convincing today, must share the present-day empirical approach, by his anxiety to show that his treatment of value is entirely in accord with the present common-sense view and by his insistence on starting from what he considers an analysis of the actual life situation in which valuing occurs.

Almost the first half of the book, however, is taken up with showing that other contemporary writers have all been unsuccessful in defining value adequately. They have confused "value" with "values," have produced only a circular definition, or have shown lack of consistency in their uses of their own terms. It is not hard to show, by isolated quotations, that even so thorough a thinker as R. B. Perry varies from time to time in the meaning he gives to the term "value." No sympathy is shown for "subjective" views, such as those of Santayana and Perry, that value is created by the attitude of the valuer, or for the theory such as Bouglé's that value can be accounted for as a product of social consciousness. Nor can the author agree with the doctrine which he finds common to many contemporaries, that God is in any sense the result of our human valuing or is ever "improved" or "enriched" by our human ideals.

The author's own position is presented at length throughout the remainder of the book. It is briefly this, that value occurs wherever there is action ("action" to be taken in the broadest possible sense) and that value is always *in the object* at which the action aims, never in the agent acting or in the relationship between agent and object. All action is always towards an object, and taking from Aristotle and Aquinas the doctrine of the "unmoved mover," the author maintains that the source or cause of movement is always some quality of this aimed-at object. The object, being the source of the movement towards it, is the cause both of the attitude of valuing brought about in the agent and of the new relation between agent and object: it is thus prior to both of them in reality and importance, and is the logical seat of all value. Value, then, may be defined as "the capacity of an existent to be the end of action" (p. 180). But since the object is quite literally an *unmoved* mover, since it is entirely unaffected by the new relationship of being valued, the author is led to say that the object has not *acquired* value, but has had it all along, even before any agent was acting towards it. When an existent is not actually an object of any action, its value is static or non-functioning; but it is not merely potential, or in any sense un-

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real. As long as any existent has the capacity to become the end of action it has actual value; and since all existents have this capacity, all existents always have value.[1]

So far we have been told where value is located, not what value itself is. Now the author, again following Aquinas, believes that all action is for the welfare of the agent performing it and consequently may be said to return to the agent, or to have the agent as its ultimate goal. It is further evident to the author that "all action is an expression" (p. 125), and that that of which the whole universe is the expression we call God. The universe is thus God in action. Moreover, the action of all finite things is towards some object outside of themselves and is drawn out, as we have seen, by that object as unmoved mover; but since God is complete in Himself and can lack nothing, His action must be towards Himself as well as for the sake of Himself. His action forms the perfect circle. He is His own Unmoved Mover. In Him all distinction between valuer and valued object breaks down, and He is, therefore, not only "the object of absolute functional value" (p. 206), but "He *is value*, properly and underivatively" (p. 215).[2] The thesis of the book may therefore be summarized: God *is* value, and all things in so far as they have any being at all, *have* value.

This doctrine (like all others) rests upon certain assumptions. Among those which the reviewer feels are basic to this theory are the following: the belief that matter ("things") is incapable of motion of its own accord and depends for its source of motion on something external to itself; the doctrine of Final Causes, or ends as originators of action, with the resulting ultimate identification of being with goodness; the belief that each thing works always for its own general welfare; the Paleyan assumption that all things work together for good, and are obviously directed by some Intelligence; and a thoroughly realistic epistemology.

Of course, it is never fair to judge a writer in the light of problems he never attempts to solve, and the present author states quite definitely that he is concerned, not with values, or with standards of value, but with the nature of value itself. Nevertheless, when he states, as he does many times,[3] that all things always have value, it is difficult not to feel keenly what seems to be the lack of any basis for comparison of values, or for criticism. That we humans make mistakes in our valuing the author admits more than once, holding that in these cases we ascribed to the object a quality that it did not possess; it was not a real quality the object had that was the cause of our movement, but a quality we *thought* it had.[4] This, of course, sug-

[1] See pp. 139, 151, 153–154, 156, 157, 162, 180.
[2] Italics are mine.
[3] See above, note 1.
[4] See pp. 142, 148–9, 184–5.

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gests an interesting possibility: why might it not always be an idea in our minds and not a quality of the object that moves us? Why might not value lie in our attitude when we value rightly as when we value wrongly? But the author will have none of this. When we are wrong, the imaginary value is in us; when we are right the value is in the object.) Yet how we are to know when we are right, on what bases we may judge our own valuings—these are problems upon which the writer does not touch, and for the solution of which his theory, as he presents it in this book, seem to provide no adequate basis. Perhaps it is only because of the reviewer's own personal bias that this limitation is felt to be a distinct disadvantage.

It is, furthermore, to be regretted that a discursive repetitious style and lack of logical connection between points made in succession detract from what might otherwise be an interesting exposition of the Scholastic teaching on so contemporary and controversial a subject as value.

ORLIE PELL.

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REVUE D'HISTOIRE DE LA PHILOSOPHIE. 4e Année, Fasc. 3. Essai d'une definition historique de la philosophie: *René Hubert.* Le Teorie metafisiche, logiche e gnoseologiche di Antistene: *Adolfo Levi.* La composition du livre A de l'"Ethique à Nicomaque": *H. Margueritte.* Les astres et les nombres chez Auguste Comte: *Raymond Lenoir.*

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Aiyar, K. A. Krishnaswamy: Vedanta or The Science of Reality. Foreword by S. Radhakrishnan. Madras: Ganesh & Co. 1930. xiii + 346 pp. Rs. 10.

Barthel, Ernst: Vorstellungen und Denken. Eine Kritik des pragmatischen Verstandes. München: Ernst Reinhardt. 1931. 213 pp. 10.50 M.

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Piéron, Henri: L'Année Psychologique. Trentième Année (1929) 2 vols. (Bibliothèque de Philosophie Contemporaine.) Paris: Félix Alcan, 1930. xviii + 936 pp. 120 fr.

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Wigersma, Ir. B., Herausgeber. Verhandlungen des Ersten Hegel-Kongresses vom 22. bis 25 April 1930 im Haag. (Band I. Veroeffentlichungen des internationalen Hegelbundes.) Tübingen: J. C. B. Mohr (Paul Siebeck). 1931. Haarlem: H. D. Tjeenk Willink & Zn. 243 pp.

NOTES AND NEWS

Dr. Arthur Stein of the University of Berne has become director of the *Archiv für Geschichte der Philosophie,* which was founded in 1887 by his father, Ludwig Stein, and Hermann Diels, Wilhelm Dilthey, Benno Erdmann, and Eduard Zeller.

The new director plans to make the publication international in character and has appointed representatives in the various countries who will send in reports of books and articles in the field of the history of philosophy. Mr. Gustav Müller, of the University of Oklahoma, is the American representative.

The following have become co-directors of the *Archiv:* Ernst Cassirer (Hamburg), Hermann Glockner (Heidelberg), Ernst Hoffmann (Heidelberg), Aléxandre Koyré (Paris), Efraim Liljequist (Lund), Heinrich Rickert (Heidelberg), Eduard Spranger (Berlin), Adolf Dyroff (Bonn), G. Dawes Hicks (Cambridge), Karl Joël (Bâle), Wincently Lutoslwski (Wilno), Robert Reininger (Vienna), Carlo Sganzini (Berne), Dmitry Tschizewskij (Freiburg).

There will be three volumes of 110 pages each, published each year, and the annual subscription is 16 Marks, to be sent to the publisher, Carl Heymann, Mauerstrasse 44, Berlin W. 8, Germany.

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De Anima: Psychology and Science. RICHARD MCKEON.

Religious Experience and Metaphysical Speculation: A Note. H. M. KALLEN.

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Volume XXVII. No. 26. December 18, 1930.

Further on Good and its Structure. A. EDEL.

Books Reviews. Journals and New Books. Notes and News.
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Volume XXVIII. No. 1. January 1, 1931.

Science and Philosophy. WM. E. RITTER.

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Volume XXVIII. No. 2. January 15, 1931.

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MIND IN "PROCESS AND REALITY"

I

IN the account of mind in *Process and Reality,* Professor Whitehead presents in a novel form motives characteristic of new realism, and of English new realism in particular, upon a philosophical background of emergence and relativity.[1] It is of interest to investigate the results of such an alliance for the theory of mind, and to note what influence the addition of the doctrine of emergence has upon the commonly admitted difficulties of the earlier new realistic formulations, difficulties in regard to givenness, truth and error, the higher thought processes, and the "creative" nature of mental

[1] The volumes which precede *Process and Reality* do not provide any clearly worked out theory of mind. They do reveal that Whitehead's thought has passed from a new realistic theory of "act" on which nature is closed to mind, to a view in which mind is completely restored to nature.

The position of *The Concept of Nature* implies that an adequate description of nature requires no reference to mind. Here the percipient event is not regarded as mental, but as "that in nature from which the mind perceives. . . . This percipient event is roughly speaking the bodily life of the incarnate mind" (p. 107). Sense-awareness is interpreted as "a relation of mind to nature" (p. 67). Whitehead has admitted that his early formulations moved in the direction of withdrawing mind from nature (*Principles of Natural Knowledge,* 2d edition, p. 202, note 1).

The tendency of the later works is to repudiate the view that mind is separable from nature and that nature can be described without reference to mind. In *Science and the Modern World,* p. 102, Whitehead states that "for Berkeley's *mind,* I substitute a process of prehensive unification," and since every actual entity prehends, it is implied that mentality is a characteristic of all such entities. He also distinguishes the mere prehensive unity in a percipient event from the awareness of that prehensive unity as it is found in sense-awareness (pp. 103, 104). In the *Symbolism* volume Whitehead does not equate mind with the symbolic process, but regards symbolic reference as contributed by the mind, so that mind is something which functions symbolically "when some components of its experience" are symbolic (p. 8). This refusal to equate mind with the symbolic process indicates Whitehead's divergence from a purely functional theory of mind. There is expressed a further preference to restrict "mentality to those experiential activities which include concepts in addition to percepts" (p. 20), a preference which seems at variance with the earlier treatment of sense-awareness as a relation of mind to nature. In *Process and Reality* Whitehead works out in detail a theory in which mind is "organic" to nature, completing systematically what is confusingly hinted at in his previous works.

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activity. In this "philosophy of organism" or "organic realism" there is not the shift towards a substance view of mind that is noticeable in Laird and Alexander in their attempts to avoid the inadequacies of the earlier new realism. Under the influence of the notion of emergence, the emphasis on process takes precedence over the usual new realistic emphasis upon relation, just as this continues to take precedence over the substance-attribute mode of thought. It would be possible to approach Whitehead's view of mind from other angles, since it combines in a remarkable way insights of idealism, realism, and pragmatism. The attempt to show, for instance, that Whitehead is a contemporary Bradley who has completely renounced the category of substance in favor of the category of process would not be without interest. Nevertheless, since Whitehead's own starting point was new realistic, and since his theory of mind is a peculiar variety of the doctrine of mind as act of awareness, the approach to his position through the problems of new realism is a pertinent one, particularly in the light of Lovejoy's recent book. Contemporary philosophy shows a strong shift in the direction of a critical realism. Is it the fate of new realism to have prepared the way for critical realism by showing its own inadequacy? Or does a recognition of the doctrines of emergence and relativity give new life to the corpse, as objective relativism believes? If this should be so, does Whitehead's formulation accomplish the revivification? If not, is it the only form which this synthesis must take, or are there other more fruitful alliances possible between new realism, emergence, and relativity?

In their general form, these questions will not be dealt with in this paper. But since a central difficulty in new realism has resided in its scanty theory of mind, a consideration of Whitehead's doctrine of mind can not fail to have bearings upon these larger questions. In no thinker is it more difficult to separate the treatment of mind from the question of the validity of the ontological basis of the theory, and yet the importance of the position makes an attempt to isolate the theory of mind desirable, even though the system as a whole is thereby mutilated, and basic problems are passed by in silence.

Whitehead's procedure is in essentials to give a comprehensive description of human experience (a description unique in the way in which the usual stereotyped and highly abstract classification of the components of experience is transcended), and to then take this description as the key to the nature of all reality. The procedure is in temper radically empirical, the results being then given an ontological extension.

Neglecting the refinements of analysis, the description of expe-

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rience is about as follows. Experience is defined as the "self-enjoyment of being one among many, and of being one arising out of the composition of many."[2] There are initially many data which are "felt" as one by an actual entity, the subject, a process of concrescence in which a multiplicity becomes an organic whole, a new entity in the universe. The data are components of the universe which are grasped or prehended in a subject which is itself an actual entity. A feeling is thus "the appropriation of some elements in the universe to be components in the real internal constitution of its subject" (p. 353). Such a feeling or positive prehension involves both the ingression or objectification of the prehended entity as "a datum for feeling" and "the feeling whereby this datum is absorbed into the subjective satisfaction" (p. 82). This feeling or prehension of data is the subject's experience (pp. 252, 253). The subject is "the entity constituted by the process of feeling and including this process" (p. 136).[3] The way in which the subject prehends the data is called the "subjective form." Emotions, valuations, purposes, aversions, and consciousness are varieties of such subjective forms (p. 35). Thus in the process of prehension the data are prehended by an actual entity which through feeling appropriates the data, the result being an emergent whole in which the subject (the prehending actual entity) becomes a developed subject (a superject), reflecting in its subjective form the objects prehended.[4] Since the data prehended are "selected from the actual world" (p. 356), the account appears new realistic. The emergent whole, inseparable from a subject and yet constitutive of the subject, is itself a factor in the same actual world, capable of entering into a similar process of concrescence. The doctrine of feeling through which the prehension occurs is suggestive of the English new realists (on page 65 Whitehead notes the close analogy to Alexander's "enjoyment"), and yet by being placed in a process, feeling is not left hanging in the air as it is by many adherents of the doctrine of mind as act of awareness. Through emergence feeling is integrated with the subject which feels and the object which is felt or positively prehended.

The doctrine of mind follows from the recognition of the subject, feeling, and subjective form in the organic whole of experience. Experience is bipolar, possessing a mental and a physical pole (pp. 54, 165, 366). All prehensions, however, are not mental. Mentality primarily consists in conceptual prehensions, that is, prehensions of "eternal objects" or "pure potentialities" (pp. 49, 50, 367), where an eternal object is an object that "does not involve a

[2] *Process and Reality*, Macmillan, 1929, p. 220. Unless otherwise noted, page references will be to this volume.

[3] See also pp. 43, 234, 236, 339, 341.

[4] In Bradley's terms, every concrescence is "spiritual."

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necessary reference to any definite actual entities of the temporal world'' (p. 70). A physical prehension, as the prehension of an actual entity instead of an eternal object, is not mental. Mentality, then, requires conceptual prehensions, although in its common forms it is ''impure,'' that is, intertwined with physical prehensions (p. 49). But even a mental prehension need not be conscious. Consciousness requires that there be a proposition as a constituent of the conceptual prehension,[5] and that in the complex prehension there be also an element of mere fact which is felt in contrast to the theory embodied in the propositions (pp. 286, 326). As requiring a combination of conceptual and physical prehensions, consciousness becomes of secondary metaphysical importance (p. 211). It appears only in some subjective forms. Instead of being the basis of experience, consciousness is only a special and relatively rare experience (p. 83). The same things may be said of knowledge (pp. 243, 244). Thus the philosophy of organism, as a ''critique of feeling,'' regards mind as one aspect of and factor in an emergent process, and consciousness and knowledge as complex and special phases of such a process. With both James and Bradley, Whitehead agrees that such special phases are ''growing pains'' that have no place as such in the final ''satisfaction'' which supervenes and which such phases merely help to bring about.

The above account of human experience is then read off ontologically. The basic components of reality are regarded as actual entities and eternal objects. Every actual entity is a ''subject'' feeling the universe from which it arises (p. 89). It is an ''act of experience arising out of data'' (p. 65). Since every actual entity is felt by some actual entity, there is nothing apart from the experiences of subjects (p. 254). Hence actual entities may be regarded as ''drops of experience'' (p. 28). While all eternal objects are not prehended by actual entities (except in the case of God), some eternal objects are prehended by each actual entity, even if these be only sensa, the lowest grade of such objects. Mentality, then, is a characteristic of all actual entities, all of which are bipolar (p. 88). Consciousness, as a particular form of mentality, is not ascribable to all actual entities.

II

That the difficulties previously mentioned in connection with new realism are either avoided by Whitehead's formulation or else appear in another form is quite clear. This can be shown by a brief consideration of the topics of givenness, truth and error, the higher thought processes, and the creativity of mind.

[5] A proposition is ''a hybrid between pure potentialities and actualities,'' the subject of the proposition consisting of actual entities, the predicate of eternal objects (pp. 282, 283).

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Whitehead can not be accused of neglecting the fact of givenness. The root meaning of togetherness is regarded as "togetherness in experience," a view said to avoid "the disjunction of the components of subjective experience from the community of the external world" (pp. 288, 289). It might seem, then, that every actual entity is given to every other, and there are some statements that say just that. But this interpretation does not seem to be consistent with major tenets of Whitehead's position, and if held seems to weaken considerably the account of givenness. For although Whitehead admits that "every actual entity requires a totality of 'givenness'" (p. 127), he is well aware that givenness requires some principle of limitation and exclusion (p. 69). In regard to eternal objects, it is clear that the contention is that in reference to any actual entity some such objects are given, but not all of them (p. 69). In this statement God is again excepted. When sense-data are given for the experience of a subject, their givenness is held to arise "from the functioning of the antecedent physical body of the subject" (p. 97). Is anything given except eternal objects? Whitehead is not explicit as to whether every feeling or positive prehension is a case of givenness. Since he speaks of some eternal objects as felt and some eternal objects as given, it is perhaps possible to assume that every feeling or positive prehension is a case of givenness, and vice versa. While "every actual entity is felt by some actual entity," and while every entity in the actual world of an entity is felt by that entity, Whitehead can hardly mean that every actual entity is felt by or given for every other actual entity. To mention merely one passage, the doctrine of the "medium" on page 345 is difficult to understand on such an assumption.[6] I assume, then, since all feeling is not of eternal objects, that some actual entities and some eternal objects are given to or for every actual entity, with the possibility that no qualification is necessary in the case of God. Such objects are given in the sense of being positively prehended or

[6] "The medium between *D* and *A* consists of all those actual entities which lie in the actual world of *A* and not in the actual world of *D*." The definition of contemporary events also does not seem compatible with the view that every actual entity is given to every other. Nevertheless, Whitehead specifically writes that "if we allow for degrees of relevance, and for negligible relevance, we must say that every actual entity is present in every other actual entity" (p. 79), and this last clause is identified on the following page with "objectification" and so signifies a positive prehension. I can not reconcile this with the insistence that givenness requires limitation and exclusion, that "the meaning of 'givenness' is that what *is* 'given' might not have been 'given'; and that what *is not* 'given' *might have been* 'given'" (p. 70). If givenness is ubiquitous, the term seems to lose all meaning. I have accordingly assumed that every actual entity is not given to every other. The contrary assumption is not, in any empirical sense, a theory of givenness at all.

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experienced. To be given means to be a datum felt by a subject and appropriated by the subject.

It would appear, then, that aside from God, there are some actual entities and some eternal objects not prehended by any particular actual entity.[7] What is the relation of two actual entities which do not positively prehend each other? Suppose that these two actual entities, A and B, are both prehended by another actual entity, C, and so are "together" in the experience of C, then the very conditions of the example preclude the view that B is experienced by A as together with it in A's experience, and that A is experienced by B as together with it in B's experience. This example points out that experience may reveal, in addition to the togetherness of data with a subject, a togetherness among data where the data do not positively prehend each other. The claim that experience only reveals a togetherness of data with a subject is not a true proposition about experience. Accordingly, there may be a togetherness of elements in which the elements do not experience the elements they are together with, and it is at least possible to hold that givenness is an emergent character of certain wholes, and only certain wholes.[8] The problem would then be to specify the particular conditions under which givenness becomes the characteristic of a whole of elements.

The question is whether the difference between givenness and the absence of givenness is satisfactorily identified with the presence or absence of positive prehensions among entities. To some this will seem a very wide use of the term "givenness," since every actual entity has, on Whitehead's usage, a field of givenness. This view makes it possible to hold that the beach and neighboring stones are given to a particular stone, and that the sun is given to the planets. While such a usage is perfectly compatible with the theory of prehension and with the position that there is nothing apart from the experiences of subjects, it is not a usage which will meet with favor with those who question this universal doctrine of subjectivity. If prehensions are admitted, such persons will perhaps feel that givenness is not a characteristic of all prehensions, and that Whitehead has not specified the conditions under which givenness appears.

[7] The question as to whether contemporary entities are ever prehended will be discussed in connection with knowledge.

[8] If it be said that in the example there is still the togetherness with a subject, and that any other kind of togetherness is subordinate to this, a number of replies could be made. One would be to raise the whole question as to whether experience does always reveal a givenness to a subject, a claim which Bradley denied. Another would be to point out that the question raised is simply another form of the ego-centric predicament. Whitehead admits that "the prevalent notion, that the particular subject of experience can, in the nature of the case, never be eliminated from the experienced fact, is quite untrue" (p. 297).

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Into the basic questions relating to the category of prehension and the modified subjectivist principle, we can not now enter. It may be noted, however, that Whitehead's use of givenness, if the above account is not in error, is even wider than Holt's class of the objects of specific response, a class at least defined with reference to biological organisms. If Whitehead's account appears to advantage, it is because of the flavor of the "act of awareness" which permeates the doctrine, because of an experiential account of the subject instead of a purely behavioristic one (an account which at least seems to mean more by prehension than an effect in one entity caused by another), and because of the fact that on Whitehead's use of the term "consciousness," he can, unlike Holt, speak of givenness where there is not consciousness. The difference between the two accounts resides primarily in Whitehead's generalized doctrine of the subject, and in his limitation of consciousness to certain complex processes within a concrescence. Holt's use of consciousness would seem to lie somewhere between Whitehead's use of givenness and his use of consciousness, and to be identical with neither. In any case, Whitehead, unlike so many new realists, can not be accused of neglecting givenness. The question is not whether he has enough place for givenness, but whether he does not have too much.

III

That Whitehead's position involves a psychophysical duality but not a psychophysical dualism must be granted. Since every entity has a mental pole and a physical pole, is a mind in virtue of its conceptual prehensions, and physical in virtue of its physical prehensions, mind is a characteristic of every actual entity, and not a name for a separate class of entities. There can be no discarnate mind, nor nothing that is physical but not mental. Mentality is part of the activity of prehending which constitutes an actual entity. Nor are the mental and the physical to be regarded as "two sides of the same thing," since the mental, to mention merely one point, is not divisible in the way in which the physical is divisible by coördinate division (p. 436). Nor can Whitehead be accused of setting up a dualism within each actual entity, since the two aspects are not separable, but are inextricably intertwined. Rather than being two attributes of a single substance, each actual entity is conceived as a substantive constituted by mental and physical prehensions. Since minds are not one class of entities[9] and physical objects another class, since prehensions are not separate entities but components into

[9] The endurance of mind furnishes no exception. As in the case of all enduring objects, the enduring mind is not a persisting, independent substance, but the existence of a "historic route of actual occasions" (pp. 166, 167).

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which actual entities may be analyzed, that is, components of substantives, and since what is prehended need not be mental, Whitehead may be said to have avoided a metaphysics of substance, and anything which can be legitimately called a psychophysical dualism.[10]

Is the position, however, epistemologically dualistic? The question can not be answered by a simple yes or no: for the most part Whitehead is, as Lovejoy maintains, an epistemological dualist, but, consistently or not, there is also a strain of thought in which "direct knowledge" is recognized and defended.

This latter tendency of thought, suggestive of the orthodox new realism, appears in many forms. It is implied by the frequent statements that the initial data are selected from the actual world, that "already-constituted actual entities" are among the objects prehended (p. 335). One obtains the conviction that it is actual objects which are directly prehended, and at times may feel that prehension is the *tour de force* by which subjectivism is to be overcome. There are passages in both the discussion of causal efficacy and presentational immediacy which strengthen this conviction. In perception in the mode of causal efficacy, the most primitive mode of feeling, there is "direct knowledge of the antecedent functioning of the body in sense-perception" (p. 125). Memory is also regarded as an instance of causal efficacy, a direct knowledge of earlier members of a historic route. Causal efficacy also gives a sense of the causal efficacy of the objects in nature which at more advanced levels are consciously prehended. It is this form of perception which is invoked to avoid the "solipsism of the present moment" (p. 125). It is illustrated "in the silence" where "the irresistible causal efficacy of nature presses itself upon us" (p. 267). Further, the mode of perception called presentational immediacy,

[10] On the basis of earlier works, Lovejoy attempts to convict Whitehead of psychophysical dualism, holding that perceptual content is admittedly brain-begotten, and possibly mind-begotten, since there is no reason why such content can not be an aspect of the act of awareness as well as of the bodily event. In any case, for Lovejoy, perceptual content is not part of the physical world, and so is mental (*The Revolt Against Dualism*, pp. 184–186). At least in the light of *Process and Reality* this analysis is not valid. Whitehead invokes the body only as an explanation of the *givenness* of perceptual content. Since there are no novel eternal objects, neither the brain nor the mind can generate such objects. The theory is closer to a selective theory of sense than to a generative theory. Since sensa are ingredient into all actual entities, they can not be regarded as alien to nature and generated by a percipient body-mind. This would seem to be so even if sensa are interpreted as particulars and not as universals or eternal objects. Not even the admittance that what is given is not part of the object known need make the given mental or take it out of nature. Nature is closed to sensa only if nature be defined as excluding sensa. In any event, Whitehead does not regard sensa as additions to reality dependent upon the appearance of complex biological organisms.

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which "by means of a sensum, rescues from vagueness a contemporary spatial region, in respect to its spatial shape and its spatial perspective from the percipient" (p. 185), is treated in a way which does not exclude direct knowledge. Thus the sensum "gray" is the gray of a stone if "this contemporary region is the prolongation, of that historic route [which constitutes the stone], into the presented locus" (p. 261). In all these cases, the possibility of direct knowledge is clearly implied.

But other and more prominent statements throw a large part, if not the whole, of the doctrine of direct knowledge in doubt. It has already been noted that knowledge is regarded as a late stage in the process of concrescence of some actual entities. In this event, the more elementary prehensions would seem to supply material for knowledge without being themselves instances of cognition. There is some doubt then as to whether perception in the mode of causal efficacy is knowledge at all. This is further complicated by the fact that although Whitehead's language seems to imply that perception in the mode of causal efficacy can occur without perception in the mode of presentational immediacy,[11] yet since every actual entity has a mental pole which consists of the prehensions of eternal objects, and since sensa are the lowest grade of such objects, it must follow that one mode is as primitive as the other. It is expressly said that "the experience of the simplest grade of actual entity is to be conceived as the unoriginative response to the datum with its simple content of sensa" (p. 176). Hence it is doubtful if perception of causal efficacy takes place without presentational immediacy, the latter mode seeming to only enhance what is already vaguely there in the former mode (p. 262). The admission, seemingly without qualification, that particulars "are prehended by the mediation of universals" (p. 230), coupled with the above noted relation of the two modes of perception, seems to imply that all prehension, of particulars at least, is indirect. Thus while direct knowledge can not be said to have been completely denied, the emphasis has clearly shifted to the indirectness of the knowledge process. Even if Whitehead is somehow able to regard perception in the mode of causal efficacy as in principle direct (and if the above considerations are sound the ground for this is not evident), the indirectness of perception by presentational immediacy is so strongly insisted upon that the position tends strongly in the direction of a critical realist theory of knowledge.

Thus the apparent directness of knowledge in the statement that presentational immediacy is "our perception of the contem-

[11] On p. 261 presentational immediacy is assigned "only to organisms of a relatively high grade."

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porary world by the senses" is dissipated when it is realized that such perception involves conceptual feeling, and so sensa or other eternal objects (p. 474). The givenness of sensa, though not their existence, is due to "the functioning of the antecedent physical body of the subject" (p. 97). "The geometrical details of the projected sense-perception depend on the geometrical strains in the body, the qualitative sensa depend on the physiological excitements of the requisite cells in the body" (p. 193), and are given when these cells are excited, no matter how excited.[12] Thus what is given in this mode is regarded as "completely independent of the contemporary actualities which in fact make up the nexus of actualities in the locus" (p. 193), the mode yielding "no direct experience about the contemporary world" (p. 485). In fact, mutually contemporary occasions are defined as occasions which do not contribute to each other's datum (p. 188) and except for the qualifications noted which seem to make such statements too extreme, it would follow that contemporary entities are never given and that there is no direct knowledge of the contemporary world.[13] This result is qualified in an additional way: presentational immediacy is regarded as presenting the extensive structure of the contemporary world (p. 193). Since there is only a geometrical structure common to the datum and the contemporary world, Whitehead virtually accepts the position of Russell and certain of the new realists that knowledge only grasps the mathematical structure of the external world (pp. 498, 508). Whitehead himself states that if "animal faith" be taken as "perception in the mode of causal efficacy," Santayana's doctrine becomes practically identical with his own (p. 215). Here causal efficacy is invoked to keep a direct contact with the "external" world, but the difficulties in the treatment of this mode and in its relation to presentational immediacy, and the difficulty of seeing how on Whitehead's theory of knowledge causal efficacy can be known to be "direct," only increase the suspicion that Whitehead's view of knowing is practically identical with that of critical realism. To this extent, *Process and Reality* supports Lovejoy's similar conclusion based on an analysis of the earlier works. In any event, Whitehead's results furnish another line of significant evidence of the impossibility of holding with the earlier new realists that the knowledge process is unmediated, that givenness is as such knowledge. And then the old question raises itself as to whether knowledge is ever "direct," ever bare givenness.

[12] The vagueness of the term "depends" in this and other statements gives some ground for Lovejoy's ascription of a generative theory of sensa to Whitehead. Some ground, but not sufficient ground.

[13] "What is 'given' is given by reason of objectifications of actual entities from the settled past" (p. 260).

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IV

The reasons for the admission of the indirectness of knowledge are apparent. They center around the necessity of providing some place for error, and for admitting, as Whitehead thinks is required by physiological considerations, that what is given owes its givenness to the subject rather than to the actual entities contemporary with the subject. These two problems are related in that the recognition of the place of the subject in accounting for what is given furnishes a basis for the explanation of error. "The ingression of the eternal objects termed 'sense-data,' into the experience of a subject can not be construed as the simple objectification of the actual entity to which, in ordinary speech, we ascribe that sense-datum as a quality" (p. 100), since by "creative emergence" there may appear in the mental pole conceptual feelings not entirely identical with the eternal objects constituting the original datum.[14] Thus may arise "delusive" perceptions of various sorts, such as perceiving a chair when there is no chair, seeing a star where it is not and when it is not, and the phenomena of mirror-images (p. 100). Such cases provide the "limitation to the security of direct knowledge based on direct physical feeling." What is given in these cases is not as such in error, since error consists in regarding, by symbolic reference, what is given as forming part of a historic route prolonged into the present, when what is given is not a part of this route (p. 274). As this suggests, error really involves a propositional factor, and propositions, rather than given content, are the entities which are true or false. When the predicate of a proposition is "derived from the real nexus, and not refracted by the prehending subject," so that there is no "reversion," then the proposition is true (p. 401).[15] Since "truth and falsehood always require some element of sheer givenness" (p. 395), this view of truth demands a "conformity . . . of proposition and an objectified nexus" . . . "within one experience" (p. 290).[16]

In respect to knowledge, then, Whithead's analysis certainly

[14] This is the category of "reversion." See pp. 40, 388 ff.

[15] There is a strong analogy between Whitehead's use of "reversion" and Alexander's employment of "dislocation."

[16] Unless knowledge means something less than truth, this view of truth does not seem to be consistent with the claim that causal efficacy, apart from propositions, gives direct knowledge, or that presentational immediacy gives only a knowledge of the mathematical structure of the contemporary world, since here the proposition and the fact can not be brought "within one experience." In any case, on the theory of truth, the theory of knowledge can not be known to be true. Whitehead does bring in "force and vivacity" and "the illumination by consciousness of the various feelings involved in the processs" as "immediate" tests, but these criteria certainly may be mistaken, and can not be known to be "true" tests.

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avoids the difficulties of any new realism which makes knowledge consist in bare givenness, whether to an organism or an act of awareness, and thereby makes error impossible. At the same time, Whitehead seems to have left a place for direct knowledge in both basic modes of perception. In spite of Whitehead's own statements that presentational immediacy gives no direct knowledge of the contemporary world, it is perfectly consistent with the main lines of his thought to admit that what is given may be part of the external object that is being prehended. The status of causal efficacy is so involved, and seemingly so ambiguous, that no comment can safely be hazarded as to whether the claim to direct knowledge in this mode can be substantiated.

Nevertheless, in both cases, the term "direct knowledge" is at fault. If mere prehension is knowledge, and propositions are not necessary for knowledge, then every actual entity knows its world. This conclusion would be in conflict with Whitehead's doctrine that knowledge is a late and complex phase of the process of concrescence of only some actual entities. That a portion of the datum may at times be correctly regarded as the present prolongation of the historic route of an external enduring object is possibly true, but the truth would lie not in the fact alone but in the "conformity" of a proposition to that state of affairs. There would seem to be little advantage in separating truth and knowledge here. The advantage of the identification would be that it would avoid two kinds of knowledge, one dependent upon propositions and the other not so dependent. In this way there would be a clear-cut recognition of the dependence of truth, knowledge, and error upon meaning, a category neglected by many new realists. This usage is consistent with Whitehead's admission that it is not what is given that is true or false, but the inferences based on the given and the claims made about it. This recognition of the place of meaning [17] in knowledge, while avoiding the view that knowledge is "unmediated," is perfectly compatible with the claim that what is given may be part of an enduring object other than the percipient, only it insists that this claim is a candidate for knowledge, and that what is given, aside from a judgment, is not knowledge at all. Indeed, because of the leverage obtained by the recognition of the place of propositions in truth and error, there is even less reason than otherwise for making the world as given a different realm of being than the world that is given. It is entirely possible to admit epistemological dualism, the position that the vehicle of knowledge is never identical with what is known, without being an ontological dualist of any sort. The history of new realism does show the collapse of the doctrine of

[17] Whitehead holds that a proposition is an abstraction from a judgment, and that a proposition has meaning only for a judging subject (pp. 293, 294).

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immediate knowledge. But the recognition that knowledge requires mediation does not mean that the vehicle and the object known inhabit different realms of being so that the vehicle can never reach its destination. The "ideas" by which knowledge takes place need not be, as the critical realist supposes, Cartesian; they may just as well be Deweyan. There is much in Whitehead's thinking which would seem to be in the spirit of these comments, but also much which would not. In introducing an element of mediation in knowledge, usually lacking in new realism, Whitehead's thought has remained poised in an unstable position, hovering between a critical realism and a critical pragmatism. It is a reasonable surmise that part of the difficulty has arisen from a failure to follow out the full implications of the view that givenness is not, as such, knowledge. He has attempted to patch up the theory of direct knowledge to allow for error, not realizing that on the basis of his own suggestions the phrase "direct knowledge" is without meaning.

The other two questions mentioned as points of difficulty in many new realists need only brief comment. By virtue of the importance attributed to emergence, and to the categories of reversion and transmuted feeling, Whitehead's analysis is able to provide a place for the higher thought processes, so often neglected by new realists, in the complex stages of the process of concrescence. He is similarly able to take account of the active or "creative" place of mind. In the statement that "the whole doctrine of mentality—from the case of God downwards—is that it is a modifying agency" (p. 496), he even seems to overstate the case, since he admits "unoriginative responses" to data, and since the doctrine of truth certainly requires that the subject-mind does not "refract" or add to the datum. But granting that all reality is not the work of mind, mind is contributory to every concrescent result, and in those entities where the mental pole is most prominent, the rôle which mind plays is correspondingly great. As one component of the emergent process, mind plays an active part in this process.

V

In any detailed investigation of Whitehead's system, the theory of prehension, basic to the whole doctrine, would require a minute examination and careful evaluation.[18] For present purposes it is

[18] Lovejoy has suggested a line of criticism of the notion of prehension through an analysis of the denial of simple location (*op. cit.*, pp. 173–184). A connected line of approach might be found in the relation of causation to prehension. Whitehead writes that "a simple physical feeling is an act of causation. The actual entity which is the initial datum is the 'cause,' the simple physical feeling is the 'effect' . . ." (p. 361). Is the temporal interval abolished here? If simple location is denied, is the effect literally the same

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sufficient to notice that the doctrine of mind as consisting primarily of conceptual prehensions depends on this concept. Similarly, since a conceptual prehension is a prehension of eternal objects, the whole theory of mind depends upon the validity of the notion of eternal objects. The result is that the doctrine of mind is entirely an outgrowth of the Platonic strain in Whitehead's thought. Since even the 'impure' operations of mentality (those which involve physical prehensions) are inseparable from the prehension of eternal objects, mind is primarily the grasp of the eternal and timeless. Thus instead of the universal being regarded as a stage of mind, and propositions being taken into the mental process, propositions and universals continue to be enshrined in the realm of subsistence (however named and however closely connected with the actual world by means of the ontological principle), and mind remains primarily a grasping of such entities. Whatever be the validity of Whitehead's concepts of prehension and eternal objects, it must be admitted that a theory of mind dependent upon those concepts, and upon the generalization which is given to the concept of the subject, is not the only one that can be built upon the basis of an emergent cosmology.

It was previously pointed out that experience may be consulted as to the view that there is a togetherness of data which is not necessarily the same as the togetherness of data and a subject, a fact which justifies, or at least makes possible, the position that entities may be together without there being for each entity an experience of this togetherness. In this way a basis could be obtained on which to oppose the claim that "there can be so 'many things' which are not subordinated in a concrete unity" (p. 322). There could then be an emphasis upon a pluralism more akin to the earlier new realism. It would not have to be held that the emergent properties of certain wholes (such as the *gestalt* properties of human experience) need be attributed to the factors into which experience can be analyzed. Whitehead admits the fact of multiplicity—why could not some of the factors in a given whole be elements in a multiplicity, and hence be independent of that concrescence or feeling? He also admits that "spread through the environment there may be many entities which cannot be assigned to any society of entities" (p. 169). Why could there not be such entities that are not "felt"? Could not the characteristics of experience and mentality be characteristics of groups or societies of entities, and not characteristics of the component entities of a group or society, or the entities which do not form part of any society?

as the cause? If it is not, is not the prehension merely the causal effect on one entity of another? Is prehension invoked to make direct knowledge possible, and is it necessary if in the light of the theory of truth, direct knowledge is given up?

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Such comments are clearly of a random nature, but they may suggest that an admission of the importance of emergence and relativity need not require such a divergence from the earlier new realism as is found in Whitehead. It requires neither Whitehead's particular doctrine of prehension, nor the claim that all entities are subjects, nor the view that the content of presentational immediacy consists of eternal objects.[19] Even if the admission of emergence into new realism spells a transition to objective relativism, Whitehead's position represents only one form which an objective relativism may take, a form dominated by the acceptance of the reformed subjectivist principle that "apart from the experiences of subjects there is nothing, nothing, nothing, bare nothingness" (p. 254).

It may well be that the most fruitful direction of present-day philosophy lies in a synthesis of the attitude of new realism and the doctrine of emergence, but such a synthesis takes on a different appearance when coupled with a functional theory of mind. This synthesis of the new realistic, emergent, and functional conceptions is the distinctive note of Dewey's approach, and here the presence of the functional theory of mind permits of the avoidance of the view that mentality is an intrinsic character of all actual occasions, gives a view that is not complicated by the doctrine of immediate knowledge, and dispenses with the categories of prehension and eternal objects. It must be admitted, however, that the alternative form of objective relativism is as yet a mere torso, so far devoid of the brilliant systematic presentation which Whitehead has given to "the philosophy of organism."

In conclusion, it may be added that Whitehead's theory of mind does not provide much aid to those working in problems of mind outside of philosophy proper. The view that mentality consists primarily in conceptual prehensions, the grasping of eternal objects or pure potentialities, does not lighten the task of the investigation of mentality in animals, the study of the relation of language to mental phenomena, the tracing of the social and anthropological aspects of mind, or the understanding of the mental side of "mental disease." Even if a properly philosophical theory must go beyond the requirements of special investigators, the test of philosophical generalization, as Whitehead admits, is always the validity of such generalization when confronted with domains of experience different from that in which the generalization arose, and the theory of mind in question is less fruitful in this respect than might reasonably be desired.

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[19] The suggestions of emergence in Spaulding's *The New Rationalism* do not tend in these directions.

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BOOK REVIEWS

Erkenntnisstheorie: Eine Untersuchung ihrer Aufgabe und ihrer Problematik. SIEGFRIED WEINBURG. Berlin: Carl Heymanns Verlag. 1930. Pp. viii + 134.

The author of this charming little book has been very successful in presenting his conception of the scope of epistemology in a delightfully clear formulation. He discussed the subject under the following main headings: (1) the genesis, (2) the problem, (3) the aims, (4) the controversies, (5) the basis, (6) the method of epistemology, (7) the epistemological clarification of ultimate problems, (8) a critique of Kant's epistemology, and (9) the achievements of epistemology.

(I) Experience, fragmentary and contradictory in all of its aspects, is the direct cause of every philosophical problem. It is the aim of philosophy to serve stubborn, persistent problems by means of exposition rather than by despotic definitions which preclude unrestricted investigation. There is no exclusive formula for the elimination of the problematic. In the light of experience every highly lauded system of thought which tries to reduce a dynamic universe to a harmonious whole proves itself illusory and ineffective. Philosophy is incapable of constructing a cosmos free from every contradiction. How often has philosophy resorted to a violent distortion of experience! It repeatedly divides experience into two halves. The part which readily lends itself to conformation with the preconceived systematic idea is considered to be true and real; while the other part is declared to be illusory because it can not be made to conform with the integrating idea of the system. A system of thought free from every contradiction does not signify a victory over the problems of experience. Experience rebels against every system which tries to prescribe. It has always successfully eluded the distortions of historical metaphysical systems. There never was nor ever will be a system of philosophy which answers all questions. Systems of metaphysics have never died because they contain some contradictions, but because they failed to tell something about problematic experience. The futile attempt of philosophy to attain a final system is the direct cause of the prevailing anarchy in the field of speculation. The most contradictory theories dominate the field even if they can be neither proved nor disproved. Thus epistemology is the cornerstone of every would-be philosophy.

Both the failure and the success of solving some aspects of problematic experience leads inevitably to a critical study of knowledge. The special sciences, especially the newer advances in physics, mathematics, and psychology, in fact every aspect of experience, gives

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rise to epistemological considerations. The entire literature of the physical theory of relativity reeks with epistemological discussion. All the great turning-points in theoretical science have been mainly due to a new insight into the principles of scientific knowledge. Einstein's critique of the major methods of physical knowledge enabled him to reach fresh, fertile conceptions.

(II) While an investigation is originally directed towards a selected object, be it a problem of practical life, of a special science, or of philosophy, the attempt to terminate the investigation finally leads to a question of the method, achievement, and value of the investigation itself. The investigation detaches itself, so to say, from the "object" and attaches itself to the "knowledge of the object." This constitutes the peculiarity of the epistemological problem. The two types of investigation in which the one aims at the object, and the other at the knowledge of the object, are annihilated in their contrast if we argue that "the knowledge of object" is "the object of knowledge." Epistemology has no additional "object" or "knowledge of object" whatsoever over and above the object and the knowledge of object of an investigation in question. Thus the epistemological problem differs very radically from every other question in that by asking what is knowledge one does not mean to assign to the object of knowledge a place in some new, additional system, consciously or unconsciously predetermined.

There are three outstanding obstacles which epistemology has to face: the tendency of apriorization, of hypostatization, and of stability. Views and hypotheses which in the initial stages were warranted tend to become facts for later generations. The Arabic system of numbers which easily could be replaced by another one appears to the ordinary mind as something absolute, as expressive of an indigenous property of numbers. Much the same is the case with respect to any of the principles of the physical, biological, psychological, and social sciences. It seems a native inclination of the human mind to regard every one of its heuristic principles of investigation as being *a priori*.

The tendency of hypostatization consists in the inclination to make things out of words and hypotheses. Language is largely responsible for this. Hypostatization gives rise to theories of substance. It in turn finds its support in the desire for stability, in the inclination to assume a transcendent external world. Without it the mind fears that all its endeavors are futile.

(III) Unlike the physical sciences epistemology is not confined to some specific field of investigation. Its aim is to evaluate knowledge in general. The prevailing distrust of scientists against epistemology is justified because the existing epistemological views fail to do

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justice to physical knowledge. This is due to the fact that the philosophers have a very inadequate knowledge of the physical theories they criticize. Epistemology can not refute physics. Its task is to clarify existing scientific knowledge. It has no business prescribing to physical science what theory it should hold. A physical theory is to be rejected if its contradictions are in conflict with experience. Epistemological views are at the most survivals of a past period of science. Hence the conflict between epistemology and the recent physical theories resolves itself to an opposition of the basic physical theories separated in time. It is not permissible to apriorize any theory. Epistemology concerns itself with the evaluation of scientific knowledge in general; but it has nothing to do with deciding about the materials of the sciences. There is no exclusive science for epistemology. The failure of the existing epistemological theories serves as a strong stimulus to subject the tasks, methods, and achievements of epistemology to a fresh critique. There are no sacrosanct aspects to knowledge.

Epistemology aids the investigator in making more plastic a theory which has become absolute by sheer success. Its task is to recognize in all theories the hypothetical character. It renders explicit the fact that scientific knowledge never reaches its termination. In no field of knowledge are there any final statements possible. Epistemology has not the task of extending our knowledge of experience. It can not predict how objects must be constituted. It can not tell that certain basic concepts are immutably presupposed. Only experience can do all these things. There are no universal and necessary prescribed concepts for future experience. There exists no *a priori* science or system for experience. Both knowledge and experience need to preserve their hypothetical character. The destruction of the theory of substance in all of its subtle forms, and the purification of all experience of its metaphysical atavisms is the task of epistemology. Epistemology has to prove itself in every field of human activity. It should not confine itself to the field of scientific knowledge. If it did, its fate would be the same as that of the philosophy of nature of classical German idealism. The problem of knowledge comprises science, ethics, philosophy, esthetics, and religion.

(IV) There is no science completely free from controversial points. Even in mathematics, the queen of the sciences, there are contradictory views. The conflict of opinions is especially rampant in epistemological writings. While the conflict about the object of investigation constitutes the common basis of all the sciences, the conflict among epistemologists centers in the perpetual combat of the results of their predecessors. The causes of epistemological

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divergences are due to the peculiar differences between epistemology and the special fields of investigation. There is no common platform in epistemological research. Non-scientific motives also complicate the situation. Observation constitutes a corrective for the special sciences. Experience either confirms or refutes scientific views. Hence abiding divergences of views are impossible. The view, for instance, that knowledge is a copy of some transcendental reality can be neither confirmed nor refuted by direct observation. Why? Because it is an interpretation. Besides it is irrelevant to the observation of phenomena if the observer is either an epistemological realist or an idealistic positivist. His observations can be accepted by all the divergent epistemological theories. The epistemological conflict between Heraclitus and Parmenides concerning the reality or unreality of movement can never be settled by observations. Phenomena do not give us information about their meaningful apprehension. The decision between two scientific theories depends upon an *experimentum crucis*. Observation decides which of the two views corresponds to the stubborn facts.

The flourishing condition of the special sciences is primarily due to their ignoring certain specific questions. Epistemology seeks solutions to ultimate and general problems, problems which the special sciences ignore and are incapable of solving. No particular and controlled experience ever decided an epistemological problem, because every experience has various epistemological possibilities. The decisive factor of epistemology is whether it can become just to experience and knowledge as such. It searches for the sufficient and necessary characteristics of knowledge. These are its dynamic measuring rods. They permit of no absolute decision, irrevocably fixed. They rather necessitate continual proof and revalidation. Epistemology must needs be perpetually exposed to the criticism of experience.

(V) The task of the epistemologist is not the investigation of the foundations of the structures of science, but the investigation of their materials. He shows what building materials there are, and that no one can predict which of these will be successful. He teaches that the construction of the building of knowledge will never attain its desired completion. Epistemology is the science which has both the most and the least of presuppositions. On the one hand, it presupposes all knowledge; on the other hand, it rejects every metaphysical assumption. It determines the character of experience, and thus liberates the mind of the illusion that there is something underlying experience. It judges the carrying power of knowledge; criticizes the possible explanations and searches for self-validating interpretations. If we term an investigation of this kind "presupposi-

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tion," we simply state that these principles are the direct outgrowth of experience. Hence the basis of epistemology is something fixed, the experienced experience with all of its contradictions and the conflicting theories of science. The allegation that psychology, logic, or ontology are the basic sciences involves us in tautological talk. There is no universal ultimate order of things. Epistemologies which are psychologically, logistically, and ontologically grounded are alike justified. But their basic assumption is false. Not everything is psychological, logical, or ontological by nature. Ontology, above all, has the tendency to reject experience, while psychology and logic have their roots in experience. Epistemology presupposes logic and psychology in the sense that it presupposes the whole of experience as a problem.

(VI) Epistemology has no known fixed starting-point. Historically the factor of evidence was elevated into a vehicle of knowledge. What is dubious must be rejected. Only what is absolutely certain is admissible as knowledge. But as a matter of fact not all knowledge is of such a nature. This method narrows the field of actual knowledge at the expense of a preconceived notion. Besides, evidences are often unjustified hypostatizations and apriorizations. Those who contend that evidence is the chief vehicle of knowledge characterize all knowledge which is not evident as rank subjectivism or solipsism. Evident truths are hardly any more illuminative of experience than truths that are not directly evident. History informs us that even the most evident truths have been subject to changes. What is now arbitrary and absurd to us has been held to be evident in the past. We have no reason to assume that we are in possession of the "true" certainties. What is evident today may be absurd tomorrow. Whatever appears evident depends upon the status of scientific investigation of the existing valid and changeable views. The changes of the so-called evident are seen, for instance, in the basic concepts of recent physics. Alleged certainties are either empty tautologies or unjustified hypostatizations. Failure to examine the obvious is responsible for the emergence of so-called evident knowledge. The method of positing apodictic, immutable evident certainties does violence to experience. The method of epistemology must be radically different if metaphysics is to be evaded. Metaphysics elevated the fictitious absolute into a system, an organized indolent and deceptive attempt to combat experience. The absolute can never be the object of experience. Experience and the ever-changing sciences are the only admissible methodological starting points of epistemology.

(VII) Epistemology is not a new system of thought, but a fresh critical attitude towards the results of speculative thought. It dis-

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poses of the metaphysical and the contradictory interpretations about reality. Because there is no termination to knowledge, epistemology therefore occupies a decisive position with respect to the clarification of ultimate problems. There is no such thing as a final unity of knowledge. The unity of knowledge is never an achieved fact; but it is the standing challenge to our intellectual endeavors. Neither is there an ultimate system of scientific knowledge which inerrantly takes account of every datum of experience. All theories possess only probable, never apodictic, certainty. They always are hypothetical, and are ever in need of the test of experience. A final theory is a mythical unity. Such a theory would mean the certain death of all scientific and intellectual pursuits. A theory is "true" if it renders intelligible the existing observations, and if it lends itself to modification, because of the improved knowledge of experience. A theory that embraces more facts than another is the better and the "truer" theory. New vistas of experience may give rise to totally new theories; they may lead to a recrudescence of earlier theories; or they may even give rise to several contradictory theories. The latter has been actually happening in the recent advances of physics. It shows that experience is the final judge of every theory.

There are no absolute, eternal principles and truths, neither in logic nor in mathematics. This is not a negation of facts; but a frank rejection of a false interpretation. Principles, theories, are only true in so far as they function as adequate tools of interpretation of experience. Truth is not an entity. It is a creation, an attempt, a venture, or a successful risk that is continually taken. Neither are there any such metaphysical fictions as things in themselves.

(VIII) Epistemology reveals the fact that every science, truth, and all knowledge is unfinished. The history of science disproves the existence of eternal, immutable principles. Kant destroyed the fiction of a metaphysical absolute. He achieved his goal by an appeal to the success of physical science. He held that while the principles of metaphysics were never apodictically certain, the principles of physical science were. Newton's principles were for Kant the *a priori* conditions of science as such. However, the subsequent history of science refuted the Kantian view of science.

Aristotelian logic constituted for Kant a finished and closed science. The Stagirite's influence is especially noticeable in Kant's table of categories. He erroneously believed them to represent an immutable inventory of the functions of the understanding. Kant failed to see that Aristotle's logic depends directly upon his metaphysics, that its origin is largely a matter of grammar, and that it gives its support to the naïve prejudice of the existence of things,

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in themselves. Its sphere of application is mainly in the field of practical matters. It has been found wanting in matters of theoretical science, especially in the field of theoretical mathematics. The main failure of the logic of Aristotle lies, however, in the unwarranted hypostatization of practical principles.

Similarly Kant held the axioms of Euclid to be the sole possible and necessary conditions of experience and of knowledge. He declared that there was a necessary agreement between an actual physical body and the body of Euclidean geometry. The development of non-Euclidean geometry disproves Kant's contention. He merely hypostatized one of the possible systems of geometry.

Kant likewise believed the basic concepts of Newton's physics to be *a priori,* immutable principles. Fundamental physical concepts which in the meantime have been radically changed are deduced *a priori* in the *Critique of Pure Reason.*

Hence a critical epistemology rejects the following metaphysical fictions: the absolute, the transcendental world, or reality, and the existence of an *a priori* system of principles. Knowledge is essentially the never-ending attempt to master the problems of experience. Theories and principles are merely the necessary instruments of our mind to clarify the problems of experience. There is, however, no one instrument which for all time and independent of its application can be declared to be *the* correct one. If principles and theories do not prove themselves as instruments of knowledge, they are to be replaced by better ones.

(IX) One of the major achievements of epistemology is its passion for the solution of purely theoretical and intellectual matters. It may thus indirectly aid in the progress of pure and applied science. It serves as a palliative against dogmatic fanaticism and intolerant metaphysical systems.

Another essential achievement of epistemology is its catharsis of metaphysical opinions. It liberates thought from its hypostatizing tendencies. It unmasks meaningless questions.

A critical epistemology warrants a more adequate estimate of the scope of validity of a theory or a principle. It unmasks any pseudo-science parading in philosophical dress. It is especially the successful theories of the special sciences which tend to become exalted into universal principles. There lurks in such expansion great danger. One of the most conspicuous attempts of such unjustified extension is the elevation of the biological theory of descent into a cosmic principle.

Another significant achievement of epistemology is that it renders older views more plastic. It reveals to the investigator the meaning and the bases of the growth of theories. Einstein has repeatedly

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stressed the fact that epistemological considerations aided his creative conception of the general theory of relativity.

Epistemology therefore contends that all mental creations are subject to revision, and that unfinished experience constitutes the ever-present stimulus in the creative growth of knowledge.

HERMAN HAUSHEER.

COLLEGE OF PUGET SOUND.

Crescas' Critique of Aristotle. HARRY AUSTRYN WOLFSON. Cambridge: Harvard University Press. 1929. xvi + 759 pp.

Before the Spanish Jewish philosopher Hasdai Crescas (1340–1410), Christian, Mohammedan, and Jew alike acknowledged Aristotle as the master of those that know. Of Jewish Aristotelians Abraham ibn Daud (1110–1180) was the first and Maimonides (1135–1204) the greatest. The *Guide to the Perplexed* makes Aristotle the basis of Judaism, and the authority of Maimonides gave his construction almost universal currency among the Jews. Many traditionalists, however, especially in northern France and in Germany, insisted on the Bible and rabbinic literature as the authority for the existence, unity, and incorporeality of God, and objected to basing on pagan philosophy doctrines relating to revelation, reward and punishment, the nature of God, the nature of the soul. In the *Guide* Maimonides sums up the doctrines of Aristotle in twenty-five propositions. For the proof of these propositions he refers to the reader's own reasoning and to the writings of others; he himself disdains "to copy the books of the philosophers." To discredit these propositions was the task of the anti-Aristotelians, and it is Crescas' merit to have first gone about the refutation in a systematic manner, in the first part of his *Or Adonai* (Light of the Lord).

Before demolishing Aristotle's case Crescas felt it was necessary for him to present it. He therefore divides his treatment of the Maimonidean propositions into two parts: the proofs, derived from Aristotle, and his criticism of the proofs. For the proofs he collects the arguments from various sources, merely arranging them after his own design. Aristotle was known to Crescas only through Hebrew translations made from Arabic, but, as Professor Wolfson points out (page 7), "contrary to the prevalent opinion among students of the history of philosophy, the translations of Aristotle both in Arabic and in Hebrew have preserved to a remarkable degree not only clear-cut analyses of the text of Aristotle's works, but also the exact meaning of his terminology and forms of expression. The literalness and faithfulness with which the successive translators from one language into another performed their task, coupled with a living tradition of Aristotelian scholarship . . . enabled Crescas to obtain a pretty

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accurate knowledge of Aristotle's writings." For the criticism of the proofs Crescas is equally eclectic, though he does not admit it, and it is Professor Wolfson's merit to have painstakingly collected Crescas' authorities and to have shown how Crescas' criticisms took form.

The plan of the book is as follows. The first part (pp. 1–127) consists of a detailed analysis of the propositions of Maimonides and of Crescas' criticism of them. The chapter headings are instructive: Infinity, Space, and Vacuum; Motion; Time; Matter and Form; Foreshadowing a New Conception of the Universe. Preceding these chapters is an Introduction dealing with Sources, Method, Influence, and Opposition. This part of the work will be of interest to the general student of medieval philosophy. The introductory and closing chapters are less technical than the others, and contribute some generally interesting observations on medieval Hebrew philosophy. The comparison of the method of the philosopher to that of the student of a Talmud text (p. 24) is extremely illuminating. Similarly interesting is the suggestion about Crescas' influence on Bruno, who lived two centuries later (p. 118).

The second part of the book (pp. 130–315) is a critical edition of the twenty-five propositions in the *Or Adonai*, based on the *editio princeps* and eleven MSS., together with an English translation. The third part (pp. 319–700) is Professor Wolfson's principal contribution. These "Notes on the Twenty-five Propositions" show a prodigious quantity of learning. They are considerably more than notes. They are, in effect, substantive treatises on the topics under discussion, putting the reader in full possession of the material which Crescas himself used for the elaboration of his doctrines. Aside from the clarifying discussions of the intricate questions of dependence and authority, the philological, critical, and historical information alone would suffice to make this work unique in its quality. Be it remembered that the literatures under contribution are Arabic and Hebrew, Greek and Latin, and that of the former two a considerable portion is unpublished and must be collected from manuscripts in scattered libraries. The excerpts from unpublished authors alone are of the greatest value for the scholar. But even for the student who is trying to find his way in the field this work, learned as it is, is a rich mine of information. Hardly a question relating to medieval Jewish philosophy, whether of philosopher or of terminology, of doctrine or dependence, does not receive suggestive and illuminating comment somewhere in the book.

This wealth of learning, of necessity scattered and unsystematically arranged, is made readily available by forty-five pages of excellent indices.

COLUMBIA UNIVERSITY. MOSES HADAS.

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Appearance and Reality. F. H. BRADLEY. (Ninth impression.) Oxford University Press. 1930. xxiii + 570 pp.

Those of his readers who are familiar with Bradley's last work, that is, the essays written during the final two decades of his life and the revised edition of *The Principles of Logic,* may perhaps be misled by the publishers' announcement that this is a corrected edition of *Appearance and Reality.* The adjective is but the formal notice that new plates have been used in the preparation of this volume. It is, to be sure, unfortunate that this most popular of his works was not corrected by the author before his death, that he did not subject it (in the light of his later findings) to the same careful revision that the *Logic* suffered; much would undoubtedly have been altered. We are told that the essay "does not design to be permanent, and will be satisfied to be negative, so long as that word implies an attitude of active questioning." And yet upon this obviously transitional volume his reputation has been based and continues in most quarters to rest.

There seems to be a tradition, subscribed to by all but a few modern critics, that labels are sacrosanct: for a thinker to be dubbed "idealist" or "pragmatist" is tantamount to having his intellect stripped nude, flayed, dissected, and every minute nerve channel neatly catalogued and charted. To be known as "absolute idealist" (Bradley's fate since 1893) is only more speedy fatality. "Intellectualism" was firmly affixed to *Appearance and Reality* on its first publication, and in spite of the antipodal position which Bradley later came to take up, this taint clung to him persistently through all his subsequent development. But the Absolute which Bradley finally espoused differs so radically from the Absolute of *Appearance and Reality* that the two can not even be compared, so radically indeed that even the term is eventually a misnomer. In this development three distinct phases can be discerned.

There is first of all what we may arbitrarily term the *logical* Absolute, performing a function clearly demanded by the argument in the early *Logic.* This finds its justification throughout the first half of *Appearance and Reality.* It is something more than a postulate; its function is to solve the paradoxes of space and time, of quality and relation, of predication in general. It justifies appearances and makes possible judgments about appearances which would otherwise, so the author believes, be self-refuting. Its foundation is pure logical necessity, and of this Bradley says, "For what is *possible,* and what a general principle compels us to say *must be,* that certainly *is*" (*Appearance and Reality,* pp. 196, 199, 222).

But somewhere about the middle of the book a new tone is evident. The logical derivation of the Absolute is replaced quietly by another

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argument in which psychological categories are preëminent. In the chapter on Solipsism Bradley says, "Now . . . I admit that, to find reality, we must betake ourselves to feeling. It is the real, which there appears, which is the subject of all predicates" (*ib.*, p. 252). This is a tentative identification of feeling and the Absolute (reality) which undergoes certain important modifications as the book progresses, but which marks a definite advance from the earlier "intellectualist" chapters. Hitherto feeling had been timorously put aside as "a low and imperfect stage" or judged "most imperfect and unstable . . . whose inconsistencies lead us at once to transcend it." But in the reference above we have ample indication that the author sought already an amplified view of the *logical* Absolute. This argument leads at length to the identification of the Absolute with *experience,* and it is on this note that *Appearance and Reality* ends. But there is still a thorny distinction which must be removed: Finite experience is not the Absolute, and Absolute Experience can not be finite, in short, it is inexperienceable. This position was attacked blightingly by James, Ward, Schiller, Hicks, and, indeed, every critic who undertook to comment on *Appearance and Reality.* The distinction between "sub-relational" experience (feeling) and "supra-relational" experience (the Absolute) has been for three decades a favorite theme in Bradley criticism.

The third, and final, phase is represented by the occasional essays which followed *Appearance and Reality,* some of which were collected in 1914 into *Essays on Truth and Reality.* The central concept here is that of "immediate experience." Immediate experience is for Bradley simply experience in which there is no explicit separation between subject and object; it approximates largely to the "pure experience" of which James made much. There is that which is known and that which knows in experience, but to draw a hard and fast line between these two elements (subject and object) is impossible, for this demands first of all a dichotomy in that which is essentially one; and, secondly, both terms must be *known.* But as soon as this happens it is obvious enough that that which was knower, subject, has now become known, object, and we have taken the first step in an infinite process. This was the dilemma in which Bradley found himself, and it was this problem which he set himself to solve soon after the publication of *Appearance and Reality.* The answer at which he finally arrived, and which has become increasingly popular since it has been advocated in qualified forms by thinkers as different from Bradley as Ernst Mach and Ludwig Wittgenstein, is that to divide experience into two portions, one of which is always subject and one object for that knowing subject is a vicious abstractionism, and that, actually, experience is before all else a *totalität*

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in which the distinction between known and knower is precipitated out by reflective analysis. The final result (there is not room here to review the details of the development) is a new concept of the Absolute which has little enough in common with that metaphysical monster which stalks through the minds of many contemporary critics. It is (and the reader can justify this for himself in the *Essays on Truth and Reality*) immediate experience itself. No longer is it a misty stage somehow "beyond" finite experience; rather is it the core of all experience. Bradley himself in his final utterance makes this shift in viewpoint emphatic:

> Everywhere on behalf of the real Absolute I have been warning the reader against that false absolutism which in philosophy is to me another name for error. And it is an error which results in a two-fold mistake. It takes some distinction within the whole and asserts it as being real by itself and unconditionally; and then from this misconceived ground it goes on to deny or to belittle other complementary aspects of the same whole. But as against such absolutism the very soul of the Absolute which I defend is its insistence and emphasis on an all-pervasive relativism. Everything is justified as being real in its own sphere and degree, but not so as to entitle it to invade other spheres, and, whether positively or negatively, to usurp other powers. And it is the true Absolute alone that gives its due to every interest just because it refuses to everything more than its own due. Justice in the name of the Whole to each aspect of the world according to its special place and proper rank—Reality everywhere through self-restriction in claim and denial—this may be said to be the principle which unites these Essays. And this principle throughout conflicts with what we have here condemned as the vice of abstractionism and absolutism. [*Essays on Truth and Reality*, p. 470.]

This might well be an indictment by an astute hostile critic of the argument in *Appearance and Reality*. It is suggestive indeed, coming from the author of that book himself, as his most mature judgment.

RUDOLF KAGEY.

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JOURNALS AND NEW BOOKS

BULLETIN DE LA SOCIÉTÉ FRANÇAISE DE PHILOSOPHIE. 30e Année, No. 1. Thèse: Le Problème de Dieu et la Philosophie: *Edouard Le Roy*. Discussion: L. Brunschvicg, R. Lenoir, Xavier Léon, D. Parodi. Lettre de M. Blondel.

AUSTRALIASIAN JOURNAL OF PSYCHOLOGY AND PHILOSOPHY. Vol. VIII, No. 4. On a University Education: *Francis Anderson*. Individuality and Community: *W. Anderson*. Laughter: *C. R. McRae*. The Early Stoics: *J. Harward*. Some Educational Experiments: *G. F. Roscoe*.

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THE NEW SCHOLASTICISM. Vol. V, No. 1. La Somme Théologique d' Alexandre de Halès est-elle authentique?: *M. Gorce.*

LES ETUDES PHILOSOPHIQUES. (Organe Officiel de la Société d'Études Philosophiques.) 4e Année, No. 1. Visite à la Société Lyonnaise de Philosophie. 20 Juin 1929. Communication de M. Berger: La Morale et les Affaires modernes.—Hommage à M. Goblet. Comptes rendus de séances: 23 Nov. 1929: Henri Urtin: La crise du jury criminel; 14 Dec. 1 1929. Etienne Sourjau—Esthétique et construction du mois; 18 Janv. 1930. Jean Paul Nayrac: La Psychologie du Génie. Etudes critiques: L'oeuvre philosophique d'Edmond Husserl: *Ch. Serrus.* Analyses et comptes rendues.

Adolph, Heinrich: Personalistische Philosophie. Leipzig: Felix Meiner. 1931. 122 pp. 5.60 M.

Ginzburg, Benjamin: The Adventure of Science. New York: Simon & Schuster. 1930. xvi + 487 pp. $5.00.

Carr, H. Willdon: The Monadology of Leibniz. With an Introduction, Commentary, and Supplementary Essays. Los Angeles: University of Southern California, School of Philosophy. 1930. ix + 213 pp.

Condillac's Treatise on the Sensations. Translated by Geraldine Carr. Los Angeles: University of Southern California, School of Philosophy. 1930. xxxvii + 250 pp.

Roback, A. A.: Personality. The Crux of Social Intercourse. Cambridge, Mass.: Sci-Art Publishers. 1931. 144 pp. $1.25.

Stern, Bernhard: Lewis Henry Morgan, Social Evolutionist. Chicago: University of Chicago Press. 1931. ix + 221 pp. $2.50.

Thorndike, Edward L.: Human Learning. Messenger Lectures, Cornell University, 5th Series, 1928–1929. (Century Psychology Series.) New York: Century Co. 1931. 206 pp. $2.25.

NOTES AND NEWS

Wilbur M. Urban, formerly of Dartmouth College, is now in residence at Yale University as Professor of Philosophy.

Professor George H. Mead is retiring from the University of Chicago at the end of the current year. For the year 1931–1932, he will go as Visiting Professor of Philosophy to Columbia University.

Professor Edwin A. Burtt of the University of Chicago has accepted an appointment as Professor of Philosophy at Cornell University, beginning with the next academic year.

Professor Arthur E. Murphy of the University of Chicago, will go to Brown University as Professor of Philosophy.

Everett Hall, instructor in philosophy at the University of Chicago, has accepted a position as Assistant Professor of Philosophy at Ohio State University.

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THE JOURNAL OF PHILOSOPHY

There is no similar journal in the field of scientific philosophy. It is issued fortnightly and permits the quick publication of short contributions, prompt reviews, and timely discussions. The contents of the last six issues are as follows:

Volume XXVII. No. 25. December 4, 1930.

De Anima: Psychology and Science. RICHARD MCKEON.
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PHILOSOPHISCHE STRÖMUNGEN DER GEGENWART IN FRANKREICH

Von

I. BENRUBI

Privatdozent der Philosophie an der Universität Genf

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Keiner war berufener als er, das Buch zu schreiben, auf das viele Deutsche seit langem gewartet haben. In *bewundernswerter Selbstaufgabe* hat Benrubi sich in das Weltbild der französischen Philosophen vertieft, *erschöpfend, sachlich* und *klar* die Gedankenwelt jedes einzelnen dargestellt. Das Werk gibt einen *vollständigen Überblick* über die philosophischen Strömungen in Frankreich und wird auf lange Zeit hinaus für jeden Frankreichforscher *das unentbehrlichste Nachschlagebuch* bleiben.

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THE JOURNAL OF PHILOSOPHY

REPORT OF THE CALIFORNIA MEETING OF THE AMERICAN PHILOSOPHICAL ASSOCIATION[1]

THE Berkeley meeting of the Philosophical Associations seems in retrospect an unusually happy occcasion. It would be dangerous, perhaps, to make use of this reflection as a basis for generalizations on the present state of philosophy in America. Very much, certainly, of the pervasive sense of spiritual at-homeness and well-being present in even the more arid sessions was due to the genial charm of the surroundings and the graciousness of the hospitality with which we were received. Then, too, the makers of the program had dealt generously with us and, aided here by the spontaneous humors of some essays in discussion, had provided enough unexpected variety in subject-matter and perspective to lighten the general gravity of the proceedings. Yet the matter, I think, goes deeper than that. The gathering was remarkable for the quite unusual measure of mutual understanding that its members appeared to have achieved. The "keynote" of the entire session was struck in Mr. Savery's fine paper on "The Synoptic Theory of Truth." The attempt there made to follow out the implications of coherence, correspondence and pragmatic theories of truth to their common basis, to discover the essential facts jointly presupposed in them all, was not merely an emphatic individual success in the particular case; it appeared, as the subsequent discussion made evident, to represent the sort of enterprise in which we were all, though less clear-headedly, engaged, and to clarify a common purpose and tendency. The meetings as a whole were governed by something of this synoptic temper. There were, of course, the inevitable attempts to propound an intricate and esoteric system of philosophy within the limits of a twenty-minute paper, and the equally inevitable complaints later that the point of such a system had been misunderstood. For the rest, however, one had the feeling of knowing what the various speakers were about and being able to go with them in their arguments, for at least a considerable portion of the way. Philosophy as a coöperative undertaking will profit from such occasions.

[1] General meeting for the reception of the third series of the Paul Carus Foundation Lectures, held in connection with the Thirty-second Annual Meeting of the Western Division and the Seventh Annual Meeting of the Pacific Division, December 29–31, 1930, at the University of California.

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The major event of the meetings, as it is a major event in contemporary American philosophy, was the reading of the Carus lectures. Like many other original developments in speculation, Mr. Mead's philosophy of time is an application of a set of ideas worked out in one particular context and with respect to a special set of problems to an apparently independent problem. It is social or sociological pragmatism developed into a philosophy of nature, with the issues raised by relativity, emergent evolution, and the general tendency to "take time seriously" brought to a solution in terms of the social structure implicit in coöperative action. That the pragmatic method, propounded, of course, in relation to very different problems, should in this new context find added relevance and cogency is an impressive verification of its general validity, perhaps the most impressive that it has received in recent years. It is no less true, however, that in this new context its basic ideas are rather considerably broadened and the resulting theory is pragmatism with a difference, closer, perhaps, to Whitehead's earlier speculations than to the orthodox doctrines of the school. The classification of the doctrine must be left to later analysts. But it is not too early, I think, to express the conviction that, as a constructive and comprehensive unification of the various tendencies which have dominated American philosophy for the last twenty years, this theory is a contribution of the very first importance.

The four central ideals around which the "philosophy of the present" is organized are those of "the present" itself, of emergence, of relativity, and of sociality. That the present is the seat and locus of reality is, for Mr. Mead, the obvious implication of any theory that affirms the basic reality of time. The past and future *as past and future*, not as they were or will be when they occurred or will occur when they were or will be present, can have existence, meaning, or reality only in relation to that present which is, *when it is present*, the ground and basis for all that is real. At any time, for any present, the past and future are essentially relative, and a temporalist can consider the world only at a time or for a present. The first lecture was devoted, not to a direct exposition of this thesis, but rather to the examination of an apparently paradoxical consequence. This was perhaps unfortunate from the standpoint of exposition, since many in the audience were apprized of the paradox before they had seen the force of the central thesis. But Mr. Mead spared neither his audience nor himself in his determination to come to grips at once and as frankly as possible with the difficulties of his view. If the past is relative to a present and if the present changes, must we not hold also that the past will change as well? And how can this be reconciled with the apparent irrevocability of

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the past? Mr. Mead's reply was an analysis of the empirical meaning of such irrevocability. He concluded that this irrevocability is as much a present fact and as relative to a particular present as anything else. The past can exist as past only for a present, as the settled condition to which activity must conform. What's done can't be undone. And that which can't be undone is the very meaning and cash value of what has been done. The fully developed meaning of these settled conditions is precisely what we mean by the irrevocability of the past, and the "absolute past" *for any present* is just this fully developed meaning of a present irrevocability. The assumption of a further past independent of any present and irrevocable not in relation to some present but intrinsically and in itself is perfectly gratuitous.

At this point the concept of emergences become focal. It is not merely the case that pasts *may* vary for different presents, but that, if presents are necessarily different, their pasts *must* be different as well. The novelty of the present with respect to its conditions requires the novelty of the past, relative to this new present, with respect to the past of any previous present. However irrevocable a scientist may conceive the past of his construction to be, as the outcome of his data, he will not deny for a moment that a future scientist, with additional data not available in his present at all, will find a different past, equally irrevocable and equally subject to correction. Thus it seems possible, so far as scientific analysis is concerned, to reconcile the irrevocability of the past of any present with the expectation of a change in presents and thus of the pasts relative to them. In this way one can account for emergence without denying determinism, since the determinism exists relatively to a present and the emergence or novelty in the relation of these presents to each other. Thus emergence justifies the relativity of the past and the relativity of the past explains emergence as applied to our explanations of the world.

Yet the objection may be raised, and it is one of which Mr. Mead was keenly conscious throughout, that this relativity is merely subjective, that the "reconstructed" past will doubtless alter but that, after all, is only our idea of the past. The "real" past is quite independent of such relativity. To maintain the objective reality of relative perspectives is thus essential to his theory. The second lecture was concerned primarily with this problem. There are really, on his view, only two alternatives here. Either the relative world of perspective "appearances" is objectively real as it stands, in its relativity and with all its limitations upon it, or else its deliverances are to be corrected by some external standard not thus relative. This external standard, however, always turns out upon

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analysis to be, in its abstract independence of experience, the very negation of our world as we know it. The recurrent illustration here was that of the relation of perspectives in space-time to the four dimensional world of Minkowski's geometry. In this latter world it is true that space and time are no more and that the special standpoints with respect to which their distinction was meaningful have been swallowed up in identity. But for that very reason the "world" of Minkowski is not a world of events and hence, for a temporalist, is not a world at all, but a mere abstract schema or calculus of possible relations. Even in space-time we must accept the objective reality of perspectives and regard the alleged "absolute" as their structural unity and not their external and irrelevant archetype.

A similar thesis was developed with greater cogency in relation to the "perspective" of a living organism. The relative features of its environment, those which depend on its own interaction with nature, can not be subtracted from the reality with which it is in active relations. The differences between a living and a non-living object are not discernible in the merely intrinsic structure of the living organism, they are to be found in the nature of its environment, precisely in so far as that environment is altered and modified by the activity of the organism itself. The difference that the organism makes in the world, its perspective, and its own reaction to this difference, are the very essence of what it means for an organism to be alive. Those who reduce the environment to a merely physico-chemical structure should hardly be surprised if they are then unable to find life as a distinctive element in the world. It is discoverable, as has been said, in relation to those elements in the world which a merely physico-chemical viewpoint has eliminated as irrelevant from the environment within which life occurs and with respect to which it has a functional meaning.

It must be held, then, that the relations in which an event stands are essential to its nature, and that they can not be eliminated without the metaphysical fallacy of misplaced concreteness. There are different worlds, in a sense for different standpoints within nature, and reality is not to be achieved by neglect of these essential differences. Yet somehow there is community between these worlds, and factors in some sense the same can appear in many. Does not this element of community, of the presence of a common factor in diverse systems, point to a transcendent or absolute world on which all are dependent? The fourth, and in many ways the most important, of Mr. Mead's major categories provides the answer to this query. Community means sociality and it is in social relations between standpoints that their common meanings are to be discovered.

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It must be observed that the term "sociality" has been considerably amplified in this usage. Wherever there are standpoints within nature which are mutually exclusive and wherever, none the less, the same element is present in each, there is sociality in this general sense, though there need be no element of consciousness or awareness that such sociality exists. Mr. Mead has applied this general description to (*a*) the relations of perspectives in space-time, (*b*) the various "levels" of emergence and their interconnections, and (*c*) the more familiar social situation of ordinary self-conscious activity. It is the third instance which clarifies the other two. Any individual, it is argued, comes to be a self in so far as he acquires the ability to take toward his own activities the attitudes of other individuals. This means that he must occupy several standpoints with respect to the same fact or view a single fact, in this case his own activity, as present in several mutually exclusive perspectives. When he has come to judge his conduct in terms of a "generalized other," of a common social attitude valid for a group of individuals yet non-existent save as it is expressed in the possibility of transition from one individual attitude to another, he has achieved a sort of transformation formula for social standpoints which *is* the element of community between them since it is the means of uniting them in a single system. This unity lies in the process of mutual interpretation within such perspectives and does not transcend them. So the price in terms of which individuals measure the exchange value of their services or commodities is simply expressed in the transaction betweem them and would hardly be regarded as an ulterior reality to which all such interactions are but approximations. The application of similar observations to the relation of perspectives in space-time is obvious. Einstein in a sense, as M. Brunschvicg has observed, is asking scientists to place themselves alternately in mutually exclusive perspectives and to discern the rational equivalence of these in terms of the conditions of their intercommunication. The identity thus achieved is essentially a social unity and the equal legitimacy of diverse standpoints exists for a mind that can occupy any one among them, identifying in each only that which is discoverably the same, the formula which justifies the transition from one to another.

Thus the last stage of this philosophy serves to justify and to explain the first. The passage or transition which diversifies the world into relative events is also capable of unifying and organizing it when this passage takes the form of social interaction and intercommunication. Only the somewhat artificial abstraction which treats of time and relativity apart from this wider and unifying context can find them paradoxical or conflicting in reality. The

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present which is the locus of reality is not bare occurrence, it is a process of interpretation in which the meaning of the past is projected into the future through present activity. All reality is in a social present whose immanent meaning and relatedness are best exemplified in the process of adjustment and directed activity, for, in the end, they are this process itself.

It would obviously be out of place to undertake a criticism of a theory whose breadth and empirical grounding have barely been suggested in this report. I suggest, however, two queries which those who heard the lectures will hope to find answered in more detail in the completed work. (1) Does this conception of sociality imply the conscious activity of such organisms as ourselves or does it not? Unless it does it is hard to see how the statements made about "taking the attitude of the other" and the like can have any very literal meaning or how, as a consequence, the "transition" from one perspective to another in terms of a common meaning is really explained except in the special case of self-conscious activity. Yet if Mr. Mead's view implies the ubiquity of consciousness it is equally hard to understand his account of consciousness itself as an emergent or novel factor in a world which antecedently, it would appear, did not contain it. It is not yet clear, I think, that sociality in its newer and higher general meaning can be freed from the limitations of the human context and still perform special functions which owe some of their significance at least to that limited context itself. (2) The distinction between the past as it exists relatively to a given present and the past as it was when it was present is instructive. But Mr. Mead's account seems better calculated to deal with the former type of "past" than with the latter. Yet he does hold that one present "slides into" another and there seems to be a legitimate sense in which we can refer to a past present as well as to a present past. It remains to be shown that the theory of time which deals so adequately with the one situation is equally successful in its application to the other.

The presidential addresses presented mutually exclusive yet genuinely complementary perspectives of the claim of knowledge to a metaphysical grounding in reality. Mr. Loewenberg, in the guise of Lucifer, contrasted the angelic pretensions of philosophers with the transcendent world to whose "real" or intrinsic nature all such claims are equally inapplicable. With wit and precision he commented upon the "guardian angels" of idealism and the "recording angels" of the realistic persuasion, each intent upon a more than human absoluteness in the object of his philosophic affections. Among the rebels from this complacent attitude Hegel and Mr. Dewey were chiefly considered. Mr. Loewenberg's characterization

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of the former as Lucifer become Jehovah, founding on the relativity of all systems of thought the absoluteness of his own, was particularly apt. With the pragmatists he expressed a very considerable sympathy. Yet while Lucifer, too, is of the "fallen" angels, his sceptical detachment will not permit him to participate in their revolt against tradition. Rather he stands sceptically outside the battle, too keenly aware of the disproportion between the hopes of the combatants and their necessary outcome to commit himself to their partisan struggles. In the philosophical controversy now raging Mr. Loewenberg, quite definitely, is not on the side of the angels.

Mr. Cunningham appeared in a somewhat more conservative rôle. The "second Copernican Revolution," as described in Mr. Dewey's *The Quest for Certainty,* has attempted to divorce the validity of knowledge from its claim of reference to an "antecedent reality." It has thus felt justified in dismissing from philosophical consideration those problems of a "spectator theory" which concerned the relation of knowledge to such a reality and hence its "metaphysical" validity. The object of Mr. Cunningham's unusually just and adequate analysis was to show that this divorce is not in fact legitimate, that the meanings involved in knowledge can not in the end be understood apart from their reference to antecedent existence. If the object in which knowing terminates and by which it can be satisfied is more than a bare datum, and if the construction which has led to it is not merely devised *ad hoc,* but is grounded in the fact which it is its function to reveal, then the meaning is attached to the object meant and intelligible only in terms of it. I am perhaps not qualified to judge impartially the merits of this thesis, since it coincided exactly with my own criticism of Mr. C. I. Lewis' version of pragmatism. Here, too, the issue concerned the reference of meanings or concepts, in some sense "constructed," not merely to the given situation in which they arise, but also to the independent objects which they claim to reveal. That the theory of knowledge can not neglect this further reference and that, when it is recognised as primary, the assertion that "truth is made by mind" loses much of its plausibility was my contention. In the course of the discussion Mr. D. C. Williams emphasized the fact that such a view links up the analysis of knowledge with metaphysics or ontology and thus, in a sense, prejudices the question as to the nature of reality from the start. If I did not misunderstand Mr. Cunningham it was his purpose, as it was my own, to show that knowledge and reality must be thus linked together and that in its regard for this connection and its attention to the problems connected with it the "spectator theory" of knowledge is profoundly right. If philosophy is

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still to concern itself with the criticism of knowledge it can not, except provisionally, escape the responsibilities of metaphysics.

The major preoccupation of the shorter papers with problems of logic was a subject of somewhat regretful comment by Mr. Tufts. It had, however, at least one advantage. A problem of logic can often be presented clearly and discussed intelligently within the time limits of the session. This was happily instanced in Mr. Williams' paper on "The Nature of Universals and Abstractions." In the course of a concise and very neat analysis he clarified the distinction between universality and abstractness by introducing the category of the abstract particular. An abstract particular is an instance of an abstract universal, a particular color, tone, or the like. The members of a class whose distributive unity, according to Mr. Stout, *is* a universal, would fall within this category. Such entities, while less than whole, concrete facts, are limited by their occurrence in space and time, hence not universal. The discussion was distinctly sympathetic to Mr. Williams' new category, though some doubt was felt by Mr. Prall as to the criterion of wholeness, and hence of concreteness, in some particulars.

Dialectical analysis was carried to a dazzling and, to some minds, alarming conclusion in Mr. Blake's treatment of belief. He maintained (*a*) that there are no degrees of belief in the sense of more or less complete acceptance of a proposition, so long as it is accepted at all, though there may, of course, be degrees in the tenacity with which a belief is retained and (*b*) that all beliefs claim a sort of infallibility, since a true proposition can not possibly be false and, hence, to believe that a proposition is true is to believe that one can not possibly be mistaken about it, i.e., that it can not possibly be false. The rather heated discussion, in which Mr. Pepper and Mr. Lanz figured largely, served to shake Mr. Blake's convictions not at all, since they turned rather on the possibility of solving such problems by dialectical methods than on the validity of the argument in question.

The defenders of a more "organic" logic found considerable comfort in Mr. Townsend's view that "The Nature of Knowledge and the Knowledge of Nature" require a logic in which growth or development, in a literal though non-temporal sense, is an ultimate category and in Mr. Lenzen's illuminating illustrations from the history of physical science of the way in which, through successive approximations, this growth is made manifest. Even here, however, Mr. Brown was inclined to cavil at the unduly "logical" and hence "petrified" character of the description given and to regard growth as a psychological and hence extra-logical concept. A novel application of logical methods was presented in the three dimen-

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sional diagrams of certain formal subject-predicate relationships which were Mr. Winn's contribution to "A Theory of Judgment and Geometry of Logic." Mr. Marhenke's comment that the demands of logic had been subordinated to the exigencies of the diagrams seemed not unwarranted, but the possibilities of three- and, as Mr. Lanz enthusiastically suggested, four-dimensional diagrams opened intriguing vistas to at least a portion of the audience. Mr. Prall's reopening of the case for nominalism was impressive both in the range of considerations included and in the ingenuity with which traditional and, one would have supposed, insoluble difficulties were avoided. The extreme condensation of the argument and the rapidity of the reading left a finite reporter, without the enviable powers ascribed by Mr. Loewenberg to "recording angels," unable to register more than a general impression of its trend. In answer to Mr. Pepper's comments Mr. Prall disclaimed any intention of "explaining away" the implications of similarity and in response to Mr. H. B. Alexander's rather startling observation that for him the word "same" always meant "different" reaffirmed his own intention of employing it in the more usual sense. Even those of us who failed wholly to keep pace with the development of the argument were thus reassured by its outcome.

In contrast to the abstractness of such discussions Mr. Starbuck's plea for a "Philosophy Functioning in Life" pointed out entirely new fields of usefulness for lovers of wisdom. After an introductory suggestion that the philosophy of the future must deal rather more with intimates than with ultimates he proceeded to outline his own experiments in the quantitative determination of philosophic results. That ethical problems are clarified by statistical estimates of habits of truth-telling in children, that the religious experience is enlightened by a specification in grams of the suggestibility of those most susceptible to it and that epistemology would profit by a series of "space-time confessions" from its expositors were suggestions offered. Mr. Tufts and Mrs. Sabin-Smith were sceptical as to the extent to which a quantitative approach to such problems could be made effective, but Mr. Starbuck's final reply, in which it was simply urged that his colleagues, without surrendering their own methods of approach, keep an open mind on the possible merit of his experiments, disarmed criticism.

The "intelligibility" of Mr. Whitehead's *Process and Reality* was Mr. Urban's point of departure in his comments on the general validity of the "philosophy of organism." That this book is in all truth very difficult to understand, that this difficulty is fundamental to the enterprise which Whitehead has undertaken and that it indicates the impossibility even in principle of succeeding in the attempt

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to fuse the categories of science and of value as coördinate elements in a single system were central points in his discussion. In his criticism of Mr. Whitehead's use of "feeling," for example, as at once esthetic and ubiquitous, Mr. Urban's objection to the theory seemed particularly well taken. Though one or two hardy souls ventured the daring affirmation that they did understand *Process and Reality* or at least were not yet convinced that they might not in the course of time achieve such understanding, there was much sentiment to support the critic. On the larger issue of the possibility of *ever* combining categories of description and appreciation on a single plane of metaphysical explanation there was more difference of opinion.

Among the remaining papers some must be enumerated only, since their content can hardly be presented adequately within the limits of this report. Mr. E. H. Lewis' combination of linguistic erudition and philosophic wit can not be appreciated at second hand. If the genealogies revealed for some respectable metaphysical terms seemed almost too good to be true, there was no one in the audience without a most emphatic will to believe. With a series of solemn papers already presented and more to come in the course of a very full day this grateful interlude was as delightful as it was, on the basis of the title, unexpected. "The Linguistic Origins of Certain Philosophical Contexts" will hereafter be a subject of enthusiastic interest for many of us. More could hardly be said. Mr. Mitchell's paper "On the Nature of Causality" and Mr. Hausheer's on "Thought and Experience" promised to repay further study with constructive suggestions, but presupposed too many ideas not capable of elaboration within the time allotted to be altogether comprehensible as read.

I began this report with a reference to the "synoptic" spirit manifest in many of the papers presented and I should like to close with a comment on the two in which it was particularly effective. One would have expected Mr. Hoernlé to be synoptic. But even idealists do not always practise what they preach in matters of controversy and the particular application of the gospel of reconciliation of opposition to controverted cases is an important—and essential—corollary of the general principle. In this case the issue concerned Bosanquet's reaffirmation of the "reality" of the imaginary in his *Meeting of Extremes*, and his disagreement with Mr. Hoernlé's supposed position that only the actual or existent is real. If "real" means *realized* then, Mr. Hoernlé argued, only the actual is real. But if we use "real" to describe the real nature of anything—what it would be if it did exist—then the imaginary must be granted its own reality. Since the actual and the merely possible are identical

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in essence it is not difficult to see how, as Bosanquet observed, an "imaginary" Hamlet may be more significant than many an actual man. Yet this significance is *realized* only in its embodiment in actuality and hence while the "Universe" includes the imaginary as real nature or possibility it may still be said, without at all contradicting Bosanquet's thesis, that an important distinction remains between the "real" in this sense and the further and unique "reality" of existence itself. If Bosanquet himself could have failed to appreciate the adequacy of the reconciliation thus achieved he was less of an idealist than we have thought him.

Mr. Savery's demonstration of the "confluence" of diverse theories of truth began with a classification of propositions and ended in metaphysics. On the middle ground of epistemology, which alone can be considered here, it reconciled correspondence and coherence by reducing correspondence to partial identity of knowledge and fact and coherence to non-contradiction. If truth is identity, then its most fundamental test is self-consistency and "the original of truth is a known non-contradiction." Pragmatism is included since its legitimate emphasis on hypothesis and verification must be broadened to include at one extreme direct confrontation with fact and the recognition of identity (or correspondence) and at the other, where no direct verification is possible, the appeal to coherence with known fact as the criterion of truth. An idea that would be known to be not different from a fact if it were confronted with it is true and the evidence of this truth is the measure of its consistency with fact as known. The whole structure of ideas which justifies and deepens this analysis can not adequately be appreciated until Mr. Savery makes this important theory available to us in printed form. We were all more eager to follow out its implications at the end of the session than at the beginning. And that, I think, can not always be said of the outcome of the deliberations of philosophers.

ARTHUR E. MURPHY.

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BOOK REVIEWS

Plato's Theory of Ethics. The Moral Criterion and the Highest Good. R. C. LODGE. (International Library of Psychology, Philosophy and Scientific Method.) New York: Harcourt, Brace & Company. 1928. xiv + 558 pp.

Most commentators have made a discrimination between platonic and non-platonic doctrines in the Dialogues. They have assumed that Plato introduced certain characters to express his own theories, while others were intended to voice the opinions he wished to over-

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throw. The result has been to restrict the rich variety of Plato's thought to some one aspect that happens to fit the interests of the modern scholar. But neither Socrates nor any other interlocutor has a monopoly of right reason in Plato's writings. "If we read the Dialogues in the spirit of a pupil rather than of a judge, we find many avenues of approach to the distinction between good and evil, and to the tests or criteria by which that distinction is established" (p. 7). With this in mind, Professor Lodge has assembled the many ethical references in the Dialogues and arranged them in series of increasing philosophical significance. Thus, he singles out the major themes of Plato's moral speculation, each of which is pursued on successively higher levels of insight.

The book has three main parts, investigating (1) the moral criterion, (2) scales of goods, and (3) highest goods in platonism. Its general conclusion is that, while Plato recognized the relative validity of various answers to these ethical problems, he discerned the absolute unity underlying them all. Instinctive preferences, social and religious traditions, legal sanctions, scientific theory, philosophic vision, represent an ascending clarification of judgment, culminating in the Idea of Good. The moral insight of platonism is gained by a method of approximation. Contrary views are developed, not merely for the sake of proof or disproof, but in order to bring together the various features of moral experience in a wider perspective through which their implicit truth can be unfolded. The several scales of relative goods (consisting of soul-body-wealth, of the virtues, of public and private goods, of the goods of intelligence in relation to other goods, of divine and human goods) constitute the setting within which the position of the highest good is to be sought. Various "candidates" present more or less reasonable claims to this position. Beginning with Pleasure and ending with God, as the alone good, each of them expresses the value-ideal in its own fashion. They are all "highest goods" with respect to the varieties of concrete situation in which they are realized. This means that "the one and only one highest good" takes many shapes and names in human experience (pp. 471–472).

The book is marked by painstaking and thorough investigation, every section being minutely documented from the Dialogues. On this account alone it should prove itself a useful work of reference for further research in platonism and the history of ethics. But with all its wealth of detail, *Plato's Theory of Ethics* remains nebulous as a whole. It may be, as Plato intimated, that nothing can ever be adequately written about these high truths. In a sense, whatever is uttered about good and evil by any speaker in the Dialogues may be treated as an authentic element in platonic ethics.

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The obvious danger in such a method of interpretation is that it will degenerate into a mere collation of scattered comments and allusions. Despite assurances to the contrary, this often seems the case in the present work. We miss the peculiar emphasis, shading, and perspective of the original context. Much of the exposition suggests a dissertation on Shakespeare drawn from Bartlett's *Familiar Quotations,* except that Professor Lodge faithfully reproduces the dull along with the memorable passages. I confess that many of Plato's utterances seem painfully banal, when abstracted from the drama in which they occur. Such, for instance, are the trite observations which Professor Lodge solemnly discusses as "the advantages associated with the functioning of the alimentary canal" (pp. 248–252, 356–360) or the pious admonitions about the abuse of wealth and material possessions (pp. 25–27, 201–212). They outdo Epictetus at his worst.

The interpretation is inspired throughout by the dialectic of modern idealism. Professor Lodge forestalls criticism on this score by admitting that he has read his own philosophical notions into the passages studied (p. xiii). Clearly, the same material would lend itself to a very different construction in the hands of a commentator of other philosophical persuasions. For the evidence from the Dialogues, of which Professor Lodge makes so much display, fails precisely at the crux of his interpretation. In their various shapes, the moral criterion, the scales of goods, and the highest good are taken to be reflections of "the Absolute Experience which we designate as God." The Idea of Good, which is the ultimate reality, is said to represent "the empirical reality of human experience summed to infinity" (p. 173). This is "the absolute, the *ne plus ultra,* the principle of ideality, as such" (p. 399). Since, "in the final analysis, there is only one Idea, the Idea of Good, the Absolute or Divine Experience," (p. 142), we are brought to the conclusion "that the highest good for the universe consists in the ideal functioning of the whole so as to realize the maximum of value-potentiality inherent in its elements, and that the highest good for a particular human being consists in so living as to constitute a consciously organic portion of this whole, and, in so living, to realize his own deepest happiness and well-being" (p. 477). All of this presupposes a dialectical concept of Experience without the slightest confirmation in the Dialogues. We are told that "experience, for platonism, is always experience of reality," "is essentially and fundamentally reality in its own living" (pp. 157, 171). But if we consult Plato's own references to ἐμπειρία, we find him regarding it as an inferior sort of skill, such as popular exegesis, rhetoric, and cookery (cf. *Protagoras* 342a, *Gorgias* 462c).

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Those who follow "experience" are "mere empirics" (cf. *Republic* 475d, ff.). To interpret the whole platonic ethics and the Idea of Good in terms of "Absolute Experience" is to import elements of modern epistemology into Plato's thought which are not only foreign but entirely misleading.

There are a few other questionable passages in what is, on the whole, a work of unimpeachable scholarship. We are told that, for the average educated Greek, "the tyrant-ideal appeared to exhibit in unmistakable form all the characteristics of the *summum bonum*" (p. 69). It is asserted dogmatically, in spite of Aristotle's denial, that Plato recognized Ideas of artefacts, as such (pp. 126, 128). And it is far from clear "why, for Plato, no difficulty is felt in identifying God with the divine principle" [the Idea of Good] or "that it would seem incorrect for him to do anything else," on the ground that "every one of Plato's ideal constructions consists of 'ideas' or 'impersonal principles'" (p. 466).

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Mind at the Crossways. C. LLOYD MORGAN. New York: Henry Holt and Co. 1930. Pp. xi + 275.

Morgan's latest book is a further exposition of his conception of emergence in development and evolution. Living creatures exhibit three main emergent steps beyond the realm of the non-living. The three steps are simple *percipience,* such as an amoeba displays in reacting to change, *perception,* which involves a "crossover" of percipience from one sense mode to another and consequent anticipatory behavior in responding, and *reflection,* in which there is not only the anticipatory behavior of perception, but also a transformation of the world of perception into a space and time order and a plan of action.

Primitive subconscious percipience becomes perception when, through learning (conditioning), an organism responds to such a stimulus as a visual pattern with a response previously dependent on, say, taste, and hence shows a fore-taste of the object. Perception is thus dependent on previous behavior as well as previous stimulation.

Mind and body represent two systems of relationships into which living organisms enter. These systems exhibit a concomitance which Morgan extends to the most primitive levels of percipient behavior. The amoeba not only reacts to the world with movement and chemical change, but with affective tone. It experiences the world, if only in a subconscious fashion. Consciousness enters at the point at which learning appears, that is, at the level of perception. Mind

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is emergent, not from physical systems, but from something more primitive than mind, but something still non-physical.

An emergent is a new order unpredictable in terms of natural science. Its appearance can be explained only in "dramatic" or purposive terms, in terms of the reflective choice of such an agent as an adult person or such an agent as God, since the emergences of evolution and individual development are not often the choice of men. Explanations in terms of instinct or hormone which attribute purposive action to such abstractions as an instinct of self-preservation Morgan asserts are improper uses of purposive or dramatic explanation.

Mind at the Crossways is written with a clarity that makes it possible for those who would disagree with Morgan to know definitely what it is they do not accept. That the amoeba has its own form of enjoyment of the world is a harmless belief, though it seems also somewhat profitless. Most of the disagreement will center about the use of the notion of emergence, which starts out with the impeccably modest significance of an unpredictable newness in the world, and such unpredicted newnesses are fortunately characteristic of the life of the mind and will always confront the psychologist; but emergence becomes in the course of the argument more than unpredicted newness. It becomes the irreducible mystery which is banished forever from the field of science. There are two reasons for objecting to this notion. One is that, when the mystery has occurred sufficiently often, it may be caught in the practice of certain habits and thus be predicted (if only statistically) and so be no more a mystery. The other is that to regard such an emergent phenomenon as reflective choice, to take a specific example, as an irreducible scientific mystery, overlooks a certain amount of reduction of its mysterious features already accomplished, and discourages what seems to be very promising investigation through analysis of the acquisition and use of language. Even the "crossways of the mind" have yielded some of their traffic regulations to observation and will yield more as observations are continued and compared.

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Europa und Asien, Untergang der Erde am Geist. THEODOR LESSING. 5 Auflage. Leipzig: Felix Meiner. 1930. Pp. viii + 358.

Multiple and various are the ailments that have been claimed for our world. Today, in an age of specialized science and technology, it is the fashion to regard reason and the machine, these dual constitu-

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ents of modern culture, as the forces making for man's downfall. Ever since Nietzsche issued his pungent indictment of certain features of modernism, questions pertaining to the "crisis" of Western man and culture have been constantly in the foreground. The World War, in particular, has given a strong impetus to the discussions in Germany, especially among non-academic circles. Of these, Lessing's *Europa und Asien* is perhaps the most passionate and eloquent statement.

Asia is the symbol of man's innocent origin, of his creative dream-world. It stands for the unrestraint and boundlessness of the soul, for reliance on the instinctive and intuitive; it implies the certainty and harmony of spontaneous activity; it is the temper that engenders a generous social polity. *Asia* represents nature and instinct.

Europe is the symbol of man awakened to consciousness, reflection, and purposeful activity; of man selecting, judging, and evaluating; of his incessant willing and desiring. It prepares the soil of an unsocial attitude. It makes for restraint, limitation, calculation. *Europe* represents culture and reason. (Lessing uses *Geist* loosely to denote the collective symbol).

The history of the earth reveals the gradual domination of *Europe* over *Asia,* that is: the victory of logic over life, of consciousness over instinct, of egocentricism over socialism. So long as man lived in nature's embrace, he was simple and certain, and his life then possessed "fulness." Consciousness and a rationalizing spirit, however, have since impoverished it. Consciousness has split the primeval unity of man, making him uncertain and wavering. Logic and science with their tendency toward the general have brought about the atrophy of the living content, the essence of which is the unique and the particular. With the birth of consciousness and thinking began thus the downfall of the earth. And with the advent of Christianity, there developed another disastrous conceit: anthropomorphism, by which nature and history were dressed up in a teleological garment that was man-cut. This philosophy of history introduced a series of unwarranted pretentions to the effect that man had the power to forecast the course of events and that these could be grasped in terms of time. *Europe* furthermore brought ethics, that is, evaluations based on selections that were necessarily arbitrary, norms in terms of which the innocence of nature was condemned and its infinite bounty found wanting. Thus have consciousness, thought, and hominism alienated man from nature, made of him a sceptical, artificial, and self-centred being. Culture, far from attaching itself to life, has become autonomous to the extent that it is now the antithesis of life.

The most hideous form that this process has assumed is to be

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found in mechanized America, "a sleepless land without nightingales, inhabited by loud people without music, hopelessly mediocre and soul-barren." Here the machine (latest aspect of *Geist*) has most effectively chilled the soul of man. The primary function of our machine-culture generally, has been the destruction of Pan. It has been demolishing forests, exterminating land- and water-animals, inciting wars for the control of the world's markets, fostering the unscrupulous exploitation of the proletariat classes. To be sure, there is an effort on the part of the scattered Asiatic remnants to halt the crushing onward tramp of this cold automaton; but it is in vain. Asia too is going the way of Europe. The machine is marching on and soon we shall also have in Asia the victory of the pale man's burden, of Sunyatsen over Laotse.

This thesis is more sweepingly condemnatory than was Spengler's cyclical pessimism. Though sharing Lessing's anathema of reflective consciousness and reason, Spengler did not include culture in his castigation of what he called "civilization." For Lessing, both are cursed with the same leprous disease: rationalizing and purpose-giving to life. Spengler's theory, furthermore, did not exclude the possibility of a new and vital culture arising from the debris of Western civilization. For Lessing, the year 1900 marks the beginning of a process in the course of which historical humanity is doomed to extinction.

Now history knows of no pessimistic philosophy that does not point the way to some escape out of the dreary situation it portrays. And Lessing's is no exception.

The tacit and acknowledged assumption throughout the work is that there exists a sharp diremption between nature and reason. The last chapter suddenly announces that this either-or dichotomy is methodologically unsound—the finest insight in the book. *Human* existence necessarily entailed the transcendence of the natural state. As human beings, we are perforce citizens of both *Europe* and *Asia*, and our tragedy consists more precisely in that we are at home in neither. Now this homeless dualism can not be bridged by a "return to nature." We must continue on the road that leads away from her warm green fields on to the cold icy peaks of reason. But in this very process, Lessing believes, salvation can be found. Through continued intellectualization, the heart of nature will be further chilled, and since reason must have nature as material to flourish on, the high point of reason's triumph will be also the moment of its complete extinction. The labor of this Nirvana-salvation thus involves continued and active participation in and promulgation of the cultural and intellectual life. (Echo of von Hartmann's cheering exhortation: man must cultivate such activities which will assure his ultimate

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annihilation.) A new race must come (*will* come, since life is bound to assert itself) that no longer performing the act of thinking will manage to survive. That race may find it necessary to ignore the truth. The power to live probably requires the power to self-deception. Well, so be it! This book, too, will then be forgotten, if forgetting it will be more conducive to life than would be the knowledge of its message. The human race will be saved from being shipwrecked on the sharp cliffs of reason by steering into the sleepy harbor of Nirvana. "Our questions are solved. For they shall be forgotten." (The book also contains a brief "exoteric answer": the suggestion of a conciliation between nature and *Geist*, stated only as a possible logical alternative.)

The prophetic manner in which Lessing proclaims his thesis and the ridiculous extremes to which he drives it, makes it tempting to dismiss it briefly. Nor is it difficult to expose the logical flaws of his argument. All of Lessing's dramatic accounts of the unjust distributions and irresponsible squanderings of economic goods do not, as Lessing believes, reveal the baneful effects of culture, but only the workings of the economic principle of surplus-value production, characteristic of a specific system. Lessing condemns civilization and culture wholesale, because of a particular and perhaps passing economic form of such, and he confusedly argues that machine-production necessarily makes for worker's exploitation. His central thesis of the self-sufficiency of the natural state is equally untenable. It seems to be contradicted by Lessing's own leading idea that consciousness and reason arose because of "need," because of some disturbance within the natural process which reason came to remove. Does not this principle argue against the position that nature can best solve her problems when left to herself? Did not reason arise precisely because nature was not sufficient unto herself? If the light of the spirit can break only through wounds (p. 36f.), then these wounds could have been inflicted only by nature herself. And if that be so, then Lessing's nature-Nirvana will offer no abiding refuge-ground and after a time, man will again have to take recourse to the scorching medicine of reason. With respect to ethics, selection and evaluation do not imply, as Lessing argues, "rejection of life," but rejection (as well as acceptance) only of a part of life. And this necessity of the spirit of saying "no," of being (in Scheler's term) "an ascetic of life," is a specific and valuable human quality that distinguishes it from an animal's indiscriminate acceptance. At the same time, these logical considerations do not abolish certain facts that provide the inner substance of the current revolt against intellectualism. In the heat with which rationalism is defended, it is sometimes forgotten that reason has necessary and serious limitations

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set by its subject-matter. Nature's infinite aspects can not be exhausted by rational analysis and can be approximated perhaps only through paradoxes. The elements of indeterminancy and chance offer irremovable stumbling-blocks to the powers of reason. And though thinking may be the effect of an intensive act and may stimulate activity, contemplation by itself can never cope with the problems of living; indeed, it often leads to doubt and uncertainty which paralyze the wings of action and produce our Hamlets. And in the weary moments which the nerve-wearing life of the spirit brings, or in the hubbub of busy hours, the soft song of Asia with its promise of freedom from our compulsive actualities, has allurements that are almost irresistible. But while *sub specie aeternitatis* there is thus value in not losing sight of the dangers of a life tyrannized by reason, it is on the other hand myopic to ignore (as Lessing does) the great service reason renders in fighting intolerance, superstition, and prejudice. And the spread of that anti-intellectualism which Lessing, with writers of related temper like Bachofen, Klages, Leopold Ziegler and their motley following are encouraging, is particularly unfortunate. These men do not point to the limitations of reason with a view of guarding its frailty from the animal-robustness of superstition and of assigning reason to its safe and proper sphere. Their irrationalism rather lends moral support to a reactionary obscurantism that regards logical consistency as sufficient indication of error, to which, as Thomas Mann puts it, the way to the "Mothers" is an affair of a casual walk.

The readiness with which philosophies that are tinged with pessimism are accepted today by many can be well enough understood in the light of a World War and the miseries of a post-war period. But to claim that these maladjustments are the necessary corollaries of a culture nourished by reason and supported by a system of machine-production, is to argue *post hoc*. The failure to consider that it may have been the *mis*use of these ingredients of Western culture that has brought about those cataclysms, is the spear-point on which all of these pessimistic criticisms remain hanging. But unfortunately they are not alone philosophically unsound. Such gospels as Lessing's nature-Nirvana or Leopold Ziegler's "new Middle Ages," held forth as the ideal fulfillment of Western culture, are today practically dangerous: their confused irrationalism and irresponsible mysticism are playing into the sinister hands of the Fascist forces that are making for the racial, social, and economic reaction to which Germany, among other countries, is today a prey.

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Bernard Bolzano, sein Leben und sein Werk. H. FELS. Leipzig: Felix Meiner. 1929. Pp. vii + 109.

Among the minor thinkers of Europe one eventually finds great masters of thought, keen and subtle observers of logical and metaphysical intricacies, who remain less known only because they are more intellectually honest than the famous architects of the great systems. They raise no claim for philosophical omniscience and confine their researches to some narrow set of specific problems, for which reason they usually fail to appeal to the imagination of the contemporaries, and leave no schools. One such thinker was Bolzano, "der grösste Logiker aller Zeiten," as Husserl called him, a Catholic mathematician and philosopher who inaugurated the so-called *Mengenlehre* and developed one of the fundamental notions of modern logic for which our neo-realists produced a very convenient name of "neutral entities."

Dr. Fels' book on Bolzano could have filled a great need in our philosophical literature, if the author had made any attempt at completeness and constructive thoroughness. But as the book stands one finds in it a highly elementary and even superficial, though very unassuming and sympathetic, exposition of the main *sections* of Bolzano's philosophy, without really acquainting the reader with his main *ideas*. Bolzano's contributions to mathematics, of which even Bertrand Russell—this sworn enemy of "philosophers"—speaks with great esteem, are entirely left out (notwithstanding the fact that there is a chapter in the book entitled *Die Mathematik und Metaphysik*, pp. 61–66). From the *Wissenschaftslehre* the whole doctrine of inference is left out. The analysis of categories, such as *Einheit, Vielheit, Allheit, Reihe, Grösse, Menge*, etc., and the unique classification of the types of judgment, are not even mentioned. The only concepts which are treated with interest and some skill are those of *Wahrheit an sich, Satz an sich*, and *Vorstellung an sich*. The exposition of the latter would have been greatly facilitated if the author had considered the American literature on "neutral entities." On the whole the historical orientation of Dr. Fels is far from satisfactory. Contact with foreign philosophical literatures is almost entirely lacking. Bolzano shrinks to a purely local, Germanic phenomenon, although in fact his importance is world-wide, as can be seen from his influences upon Lossky, Russell, and the neo-realists. But even in the field of German philosophy only the obvious is mentioned, —Leibniz, Brentano, and Husserl. Herbart is scarcely mentioned once or twice (pp. 23, 53) although both Bolzano and Herbart belong to the same stream of philosophic endeavor; both are realists, anti-psychologists, and historical opponents of Kant. The expression, *Wahrheit an sich*, is erroneously attributed to Bolzano as its author,

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whereas it was originally introduced by Fichte and used by the latter with the same signification with which Bolzano uses it, as was shown by the present reviewer years ago (*Archiv für die Geschichte der Philosophie,* 1912).

It is well known that Bolzano's books are very rare, and with the exception of his *Wissenschaftslehre* and *Paradoxien des Unendlichen* are accessible only in a very few libraries of Europe (British Museum, Berlin, Prague). After reading Dr. Fels' monograph one feels that it was scarcely worth while to make a special trip to any of those libraries to be able once more to recite Bolzano's well-known contributions to *Antipsychologismus,* and to produce a scanty survey of the less known sections of his philosophy. However, the book may be profitably read by those who are unfamiliar with Bolzano's original writings. It is written with laudable clarity and warm sympathy for the great master.

HENRY LANZ.

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The Power and Secret of the Jesuits. RENÉ FÜLÖP-MILLER. Translated from the German by F. S. Flint and D. F. Tait. New York: The Viking Press. 1930. xviii + 523 pp.

Students of philosophy might easily overlook this book as remote from their interests, but they will surely make a mistake. As a story-book, it tells one of the most amazing tales of romance, adventure, politics, and pathology imaginable. It is fine fiction, however much it may also be history. It is also a valuable treatise on the history and psychology of religion. But such matters I shall pass over here. I merely call attention to those themes which are important in the history of philosophy.

In the history of morals, Jesuit theories and practices are, of course, notorious as well as famous. Few modern moralists, however, realize how complicated the practical moral problems were with which the Jesuits were compelled to deal, and how heroically they struggled with ideas which men of sense would dismiss as obviously impossible. Loyola's *Spiritual Exercises,* for example, if studied in detail, reveal a conscientious, prosaic effort to attain by way of sense experience what mystics claim to attain by divine revelation, and to make real, in personal experience, the whole system of Christian doctrine. Similarly, the various "cases of conscience" were based on the belief that all moral situations as they came into the confessional could be catalogued and judged by the express laws of God. In themselves, such heroic attempts might seem childish, but when one follows Mr. Fülöp-Miller's exposition of how they generated many of the most basic themes of ethical theory, they become impressive and profound.

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Certainly the most entertaining sections of the book to philosophers are Parts III and IV, on Free Will and Jesuit Moral Philosophy. The religious and ecclesiastical setting of the problem of free will is described with great skill and the intricate course of the dialectic is followed through Molinism, Jansenism, probabilism, and probabiliorism, until it loses itself among intrigues at the Papal Curia and gossip among Parisian ladies. After reading this story, one feels that at last one understands why free will pops up again and again in modern philosophy, though the problem has been solved and buried a hundred times. It is especially interesting to see Descartes projected against his Jesuit background and to realize how he and his followers in modern philosophy stole the Jesuits' thunder and used it against them.

When the author comes to a discussion of more recent philosophic issues he unfortunately descends to high-class gossip. His discussion of recent attempts to "Catholicize thought," and of the Jesuits' relations to psycho-analysis, "behaviorism, plant-lice, and Pavlov's dog," is a superficial collection of opinions and citations which afford little insight into the real issues and the course of the argument. It is especially confusing in Part VII to have so vague a picture presented of the relation between the Jesuits and Neo-scholasticism and other general trends in recent Catholic thought. At times one is led to suppose that all recent Catholic thinkers are Jesuits. No doubt Herr Fülöp-Miller should be pardoned for yielding to the temptation (or is it a duty?) to tell what Kant has to say about free will.

A fascinating and generally unknown story is the history of the Jesuit Indian Republic of Paraguay, an eighteenth-century experiment in religious communism.

There is a good bibliography and the numerous illustrations are exceptionally interesting. The book ought to be valuable in introducing students to medieval and modern moral philosophy from an unusual and illuminating angle; but its value to philosophy students is perhaps the least of its many merits.

HERBERT W. SCHNEIDER.

COLUMBIA UNIVERSITY.

Principles of Ethics. JAMES H. DUNHAM. New York: Prentice-Hall, Inc. 1929. Pp. xii + 570.

Professor Dunham's treatment of the Principles of Ethics is divided into four phases, respectively dealt with by the author in the four approximatively equal divisions of the book. The preface opens with a summary description of these four phases. "It is assumed that every science will have not only a body of materials (Part I—The Materials of Ethics) and appropriate laws for ex-

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plaining them (Part II—The Methods of Ethics), but also specific methods for solving the pertinent problems confronting the investigator (Part III—The Problems of Ethics). To these three phases ethics adds a fourth, namely, the sanctions that stand behind the executive of moral acts, either as inducements or obstructions in their path (Part IV—The Sanctions of Ethics)" (p. v).

The desires, choices, and emotions, constituting the analysis of moral conduct and forming part of the specified material of Part I, although represented by the ambition of the preface, as "capable of select and extended examination" and "worthy of the same kind of objective treatment which we insist on devoting to a laboratory experiment," are as a matter of fact subjected to a confusingly conglomerate survey—copious with quoted comment, literary allusions, and moral platitudes—of problems drawn from scientific method, metaphysics, sociology, political science, psychology, and legal theory. The conclusion, however, which "should appear from the text is that morals is a system of behavior having its roots in that sentiment of obligation which the normal intelligence invariably exhibits" (p. v).

The significance of the title of the second section "The *Methods* of Ethics" is somewhat difficult to comprehend, inasmuch as the clarification given in the preface—"We may preferably follow the lead of Sidgwick and call the argument a *method* of ethics, meaning thereby that moral endeavor does not so much require an elaborate explanation of its terms as a frank statement of its objective conditions and the way to meet them" (p. v)—seems to be at variance not only with the expressed ideal of Sidgwick's work and his usage of the term "Methods," but also with the actual procedure of the author in the division in question.

On examining the actual material in the part in question it can be said to be a more or less systematic exposition of various historical positions. The various chapter headings lend themselves to a possible reclassification into the methods of hedonism, perfectionism (including intuitionism) and synthesis—the last being that of the author. The synthetic method seems to arise from a desire on the part of Professor Dunham to transcend in regard to the worth of the moral act, the one-sided evaluation of the "consequence" or teleological school on the one hand and the motive or Formalistic School on the other. "Every moral action looks backward to the sum of the qualities which make the man what he is: it looks forward to the congeries of results which are set in motion by the will. Among these results must be numbered the series of pleasures and pains that Hedonists took up as the single test of moral value. Our contention will be that the consequences of a moral act are necessary

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elements in every moral situation, but cannot themselves determine ultimate value. The Hedonist errs in laying all stress on consequences; his opponents in restricting moral quality to the actuating motive. We shall argue for a Synthetic Method uniting the two in a Homogeneous purpose, which we may tentatively call the making of sound character'' (p. 206). The Good which achieves this *desideratum* of uniting both the consequence-values of hedonism and the will-values of Kant, is ''character.'' ''Character is the systematization of desires interpreted by reason and crowned by emotional satisfaction'' (p. 267). The substitution of the term ''character'' for ''self'' has three advantages: (i) it escapes the ambiguity charged against the self-realizationists by being capable of definition; (ii) unlike the ''self,'' character is a ''sustained growth not an assumed whole''; and (iii) character is capable of realization whereas the ''self'' remains an idea which man struggles to convert into an Empirical fact but never succeeds in realizing'' (p. 268). Nevertheless, ''the principle of the Good as giving *wholeness* to moral experience fulfills requirements of an adequate standard'' (p. 268).

Against Professor Dunham's position, I have two main lines of criticism: one is as to the lack of precision in his notion of ''synthesis''; and the other is as to his success in overcoming the difficulties of the self-realizationistic position.

From Professor Dunham's treatment I am unable to make out the exact nature of the entities synthesized; in the statement of the synthetic method it seems to be motive and consequent; and in the statement of the Good it seems to be the ends of excellence and pleasure. Moreover, his demand that teleological hedonism requires supplementation inasmuch as it is unable to evaluate motives is due to some misapprehension. Teleological views *do* evaluate motives, but they do not attach an *intrinsic* value to motives, hence what has to be shown is that the derivative value placed on motives is insufficient to account for the data of our common moral judgments. This has not been shown. For such hedonists as Mill and Sidgwick and such a non-hedonistic teleologist as Paulsen, moral goodness is an extrinsic value derived from the fact that certain actions and dispositions result in consequences which contain more intrinsic value than the results of other acts and dispositions. G. E. More, who is not a hedonist, has probably put the point more clearly and precisely than any other. My confusion in the interpretation of Professor Dunham on these points is increased by the fact that Professor Dunham is a teleologist, as is shown by his criticism of Kant's moral imperative which ''requires a substantial Basis,'' for one must ''hold to the teleological nature of all moral action,'' and

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by his agreeing with More that the concept "'Good' is the most fundamental in ethical thought." Of course, even a teleologist might wish to point out that the intuition of the purely formal nature of morality (viz., of altruism—that different individuals are not to be treated differently) is not implied by the intuition of the content of the good, be it Excellence or Pleasure, any more than "lead is a visible sensum" implies that "1 plus 1 equals 2." The one must be cognized by the aid of the senses and the other by the mind alone. But if this last is in the nature of synthesis between motive and consequence, it is in no sense indicated.

The second question, as to whether or not the definition of "character" obviates the objections to the self-realizationistic position, can best be judged by considering what these objections are. The following objections are founded on the discussions of Rashdall and More. (1) If by the self is meant the actual self, it is a contradiction to require what is already actual to be realized. (2) If by the self is meant the complete set of abstract qualities which may characterize a self, the ideal or norm has no content, for any actualization whatsoever will be an actualization of Self, for it could not be otherwise. The "ideal" must be *some selection* of properties applicable to a Self—and this selection is not specified by the Self-Realizationist. (3) If by the Self to be realized is meant the Absolute and the Absolute is an Eternal Value, then any finite self, no matter of what sort or kind, will have no value and all the dictums of our ordinary morality will be false.

Now taking these objections one by one let us consider the extent to which Professor Dunham's "character" succeeds in meeting them. (1) The first assumes that if there is *something* which is to be realized by moral activity, *this something* can not be actual for the actual can not be realized. Put differently, the "norm" or "ideal" must be an "Eternal Value," constant and unchangeable. Granting that the term "character" has all the virtues imputed to it by Professor Dunham; and that therefore "The Good" as "Character" unlike the "Good" as "Self" is an *actual* process and not an assumed whole, then, if our first assumption is true, Professor Dunham's view must be false. Although an *actual* character may be good, no actual character can be "The Good," i.e., the norm, unless one holds to a descriptive ethics, which I take from the earlier parts of his exposition Professor Dunham does not. (2) The second objection assumes that the good determines only a limited set of the predicates which could be realized by a self. This implies further that since the Good is a principle of differentiation among natural predicates, the good can not be *identical* with *any one* natural predicate or with *all* of them. The Good is a predicate of predicates. Why in Professor

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Dunham's view should "character" any more than "self" determine a limited number of predicates? Even "systematized desires" is not sufficient. Any *kind* of a character is organized by some principle or other; the organization of the good character must in some way be distinguished from the bad, viz., either by "the satisfaction which is to crown" the organization or by selection of *some one* or more kinds of development. (3) The third objection assumes that the end of human striving must be the actualization of some sort or kind of life here and now and that this particular life can rightfully be described as good. This is really a metaphysical point and means that the predicate (good) is applicable and *truly* applicable to finite particular things. This is directed against the self-realizationistic position *per se* which does maintain in some form or other that the Absolute which is not a particular finite thing is the only thing which is *really* and *truly* good. This objection is, I think, superseded by Professor Dunham, if this is what he means to avoid by calling "character" *actual* and not a mere *idea* and by saying it is a process and not an assumed whole. However, the view that what is realized in this life can be good is not incompatible with the view that "the good" is not spatial and temporal.

Although Professor Dunham's book can make no pretense to being an attempt either to define in a clear concise manner such fundamental concepts of ethics as the right, the good, and the ought, nor to elaborate in a sustained and systematic fashion all the possible implications of any one set of assumptions as to the nature of such concepts, nor to verify in a careful and conscientious way any such hypothesis as to significance of these concepts by demonstrating the adequacy or inadequacy of their implications to account for the breadth of our moral phenomena without violating the laws of reason or denying the validity of part of the datum, it does show a wide comprehensiveness and a breadth of erudition in such diverse fields as philosophy, science, history, and literature.

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JOURNALS AND NEW BOOKS

THE PHILOSOPHICAL REVIEW. Vol. XL, 2. On a Possible Science of Religion: *E. A. Singer. De Angelis: J. Loewenberg.* The Paradox of the Time-Retarding Journey (II): *Arthur O. Lovejoy.* Proceedings of the American Philosophical Association, 1930.

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NOTES AND NEWS

We print below the program of the Philosophical Union of the University of California for 1931. The series of eight lectures is on the general subject of "The Nature of Facts."

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J. Loewenberg
March 27: Fact and Authority .....H. D. Roelofs
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April 17: Primary and Intelligible Facts .....G. P. Adams

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The officers elected by the Pacific Division of the American Philosophical Association for the current year are the following: President: William Savery; Vice-President: H. G. Townsend; Secretary-Treasurer: H. D. Roelofs; members of the Executive Committee: J. Loewenberg, H. W. Stuart, W. R. Dennes, R. T. Flewelling.

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Volume XXVIII. No. 1. January 1, 1931.

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Volume XXVIII. No. 2. January 15, 1931.

Mr. Lovejoy's Counter-Revolution. I. ARTHUR E. MURPHY.

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Volume XXVIII. No. 3. January 29, 1931.

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Volume XXVIII. No. 4. February 12, 1931.

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THE JOURNAL OF PHILOSOPHY

FRANCIS BACON AND CONTEMPORARY PHILOSOPHICAL DIFFICULTIES

ALTHOUGH the writings of Francis Bacon are admirably perspicuous and full-freighted, our first impression is likely to be that of a man who never quite spoke himself out. The flow of precept and doctrine so often ceases before the end has been reached. Most of his writings are mere fragments. Yet better acquaintance usually leads to the conviction that our author's mind certainly was far from being fragmentary. Bacon everywhere speaks as though he knew his own intents to the uttermost. Never was man more sententious. His very figures of speech advance the argument with all of the precision of syllogisms. In the famous figure of the ant, the spider, and bee, for example, we have a compact and exact summary of the Baconian attitude, in its opposition to empiricism and to rationalism alike.[1] The epithets with which he belabors the schoolmen are not casual whipping-rods of speech; they are categories of criticism substantiated by bills of particulars. And if we consider larger matters, the unity of feeling that emerges as we study Bacon is truly astounding. Every word finally seems to be the expression of a single mind, and even of a single mood.

This effect of unity is unaltered even when we can trace the development of Bacon's thought, as for example in the elaboration of his doctrine of the Idols that beset the mind;[2] and it is not vitiated by the fact that as time passed the importance of collecting materials for a "true Natural History" began to overshadow his earlier interest in matters of method.[3] Bacon's writings are couched in the same key after a change of theme which, according to prevailing interpretations, can only be diagnosed as an admission of complete philosophical defeat. On every hand the Baconian philosophy has been identified with Baconian induction, and is taken to commit one to the use of those fantastic tables of presence and absence and degree he was at such pains to elaborate. Bacon him-

[1] The figure is expounded in *Novum organum*, I, xcv. (In quoting from Bacon I shall use J. M. Robertson (ed.), *The Philosophical Works of Francis Bacon* (London, Rutledge, 1905), whenever possible. The above reference is to page 288.)

[2] See Robertson, Index under the title "Idols."

[3] This has been shown by James Spedding. See his preface to *Parasceve ad historiam naturalem et experimentalem*, Robertson, 388–397.

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self, however, was not of this opinion in the very treatise in which we find his view of induction most fully treated. In the last aphorism of the first book of *Novum organum* he writes as follows:[4]

> And now it is time for me to propound the art itself of interpreting nature; in which, although I conceive that I have given true and most useful precepts, yet I do not say either that it is absolutely necessary (as if nothing could be done without it) or that it is perfect. For I am of opinion that if men had ready at hand a just history of nature and experience, and laboured diligently thereon; and if they could bind themselves to two rules—the first, to lay aside received opinions and notions; and the second, to refrain the mind for a time from the highest generalisations, and those next to them,—they would be able by the native and genuine force of the mind, without any other art, to fall into my form of interpretation.

In this passage are named a number of things—a sound natural history, freedom from bias, restraint in generalization—which Bacon considers more essential to the success he desires than some particular formula of induction. As we shall see, the inductive tables appeal to him as a means of controlling the formation and use of hypotheses.

If Bacon had believed that the presentation of a new logic of induction was all-important, it is difficult to see why he left it in so incomplete a state. In *Novum organum*, II, xxi, nine subjects are specifically mentioned as requiring treatment. Of these only the first (Prerogative Instances) is there handled, while another (Preparations for Investigation) is dealt with elsewhere.[5] The remaining topics are nowhere discussed in Bacon's extant writings, nor is there any evidence that Bacon's thoughts on these subjects were ever committed to paper. Yet the precision with which they are tallied off suggests that they must have framed themselves rather distinctly in his mind. Nor would Bacon's logic have been complete even if these missing sections had been provided, and if all other missing parts of the Baconian induction had found utterance. These inductive procedures constitute but a part of the logical apparatus he intended to provide. They are but one aspect of the process of *interpreting nature,* which was to include also other non-inductive procedures, as the following passage from *Novum organum* indicates:[6]

> My directions for the interpretation of nature embrace two generic divisions; the one how to educe and form axioms from experience; the other how to deduce and derive new experiments from axioms.

[4] *Novum organum*, I, cxxx; Robertson, 301. *Novum organum* is, of course, a relatively late production, though Bacon seems to have worked on it perhaps as early as 1608.

[5] This is the *Parasceve ad historiam naturalem et experimentalem*, translated in Robertson, 402–412. This contains "the description and delineation of a Natural and Experimental History such as may serve to build philosophy upon."

[6] *Novum organum*, II, x; Robertson, 307.

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The inductive tables fall under the first division, but so also do a variety of "ministrations" to the sense and to the memory, as likewise the whole doctrine of Idols. The second division was to include the whole reverse process of putting the preliminary axioms already found to further use in advancing knowledge. This process would not conform to the canons of Baconian induction.[7]

In the situation as Bacon viewed it, then, the so-called Baconian induction occupied a by no means central position. The focal point of Bacon's thinking is to be found in the conviction that nature must be interpreted rather than anticipated. The inductive tables themselves are referred to by Bacon as but one of the "helps of the understanding" in the interpretation of nature,[8] and these other aids are regarded by him as "more powerful" than the tables.[9] The need for interpreting nature as opposed to anticipating her is the unifying principle of the Baconian philosophy. This thread runs straight through his philosophical writings, and is their vital nerve. All phases of Bacon's thinking—the advancement of learning, the doctrine of Idols, the new induction, the need for a natural history, the attack upon past systems, even his practical maxims for the guidance of life—find common ground at this point. As we find suggested in the preface to *Parasceve,* practical considerations centering around the desire to win followers who should carry on the work no doubt decided him finally to direct most attention to that "ministration to the sense" which in *Novum organum* he called "the foundation of all," and which in the Plan of the *Great Instauration* he deemed so important that no amount of theorizing or argumentation, "no, not if all men's wits could meet in one," could hope to take its place. If a group of men could be found to gather the materials for a natural history in the proper spirit—in the spirit, that is, of interpretation as opposed to anticipation—these facts would in time be ana-

[7] It is, of course, true that Bacon often uses the word "induction," in a wide sense to include the whole process of interpreting nature, but when so used it must be distinguished from the narrower "Baconian" induction exhibited in the logical tables. And it is also true that *Novum organum,* which represents a relatively late phase of his thinking, is just the place where Baconian induction receives its most thorough development.

[8] *Novum organum,* II, xxi; Robertson, 327. This is one of the places where the two phrases "the interpretation of nature" and "true and perfect induction" are used synonymously. In the nature of the case the latter phrase can not here be used to signify the inductive tables only, since the tables are spoken of as being left behind while we proceed to other things also involved in "the Interpretation of Nature and true and perfect induction."

[9] *Novum organum,* II, xix; Robertson, 322–323. They are more powerful because they are capable of reaching "true notions of simple natures," a thing which Bacon holds is impossible through the use of the tables alone, even if we include the process of exclusions of which he was so proud.

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lyzed satisfactorily by pure mother wit, even without the help of the new logic he had hoped to provide.

When the need of interpreting nature is made central to his thought, Bacon's philosophy gains greatly in clarity and force. This conviction furnishes a steady light by which his various fragmentary pronouncements can be read as expressions of a single mind. It also enables us to see them as programs of action rather than as dicta claiming metaphysical weight. They are calls to work rather than creeds. They aim not at "satisfaction (which men call truth) . . . [but at] operation."[10] Bacon is not a philosopher with a truth to tell us, but a man who wishes us to join him on a voyage of discovery.

The idea of a philosophy without metaphysical doctrines is so foreign to our creed-minded culture that it is likely to seem no philosophy at all. What are we to think of a philosopher who writes, "I have no entire or universal theory to propound; it does not seem that the time is come for such an attempt"[11]? Our bias towards metaphysics—an Idol of the Theatre which is shared by our religion and our science—makes it very difficult for us to understand Francis Bacon. When he speaks of Forms, for example, we are prone to interpret him in the metaphysical manner. It would be absurd to deny any metaphysical leaning whatever to Bacon, but in some instances the imputation would have to rest entirely on a matter of language. Thus in the first aphorism of the second book of *Novum organum* we find Bacon using a number of terms ancient to the philosophical vocabulary, and a pedant might possibly conclude that they figure significantly in his thinking; whereas it is the idea implicit in the juxtaposition and parallelism of the two sentences that constitutes the peculiarly Baconian contribution:[12]

> On a given body (*corpus*) to generate and superinduce a new nature (*naturam*) or new natures, is the work and aim of Human Power (*potentiae*). Of a given nature to discover the form (*formam*), or true specific difference (*differentiam veram*), or nature-engendering nature (*naturam naturantem*), or source of emanation (*fontem emanationis*) (for these are the terms which come nearest to a description of the thing) is the work and aim of Human Knowledge (*scientiae*).

This novel collocation of old ideas is a child of the same mind that found it possible to say that knowledge is power. That maxim is certainly more often quoted than understood. Bacon in uttering it was speaking with his accustomed brevity and precision. He was

[10] *Valerius terminus*, Ch. 9; Robertson, 194. *Cf.*, the Preface to the Great Instauration, the last paragraph: "It is not an opinion to be held, but a work to be done" (Robertson 247).

[11] *Novum organum*, II, cxvi; Robertson, 294.

[12] *Novum organum*, II, i; Robertson, 302.

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asserting that there is a way of knowing the world—that is, a way of grasping it that is intellectually satisfactory—which is also capable of giving us control over it for the uses of daily life. By one and the same process the world can be rendered subservient both to the intellect and the will. By discovering the *forms* of things ("a name which I the rather adopt because it has grown into use and become familiar"), there results both "truth in speculation and freedom in operation." [13]

Great harm has been done to Bacon's meaning at this point by endeavoring to assimilate his notion of form to that of a law in science. A part of the content of the idea is modern, but in the end its foundation is scholastic.[14] Bacon took the scholastic concept of essence and interpreted it in dynamic terms. To the scholastic, essence signified "that whereby a thing is what it is," "the constant and necessary nature of a thing as contrasted with its accidents." [15] To Bacon, form means that whereby a thing acts as it does, the constant and necessary ground of its functioning. To the scholastic the idea of essence connoted a certain state of being, whereas with Bacon the necessary association of form is with activity. Accordingly, Bacon looks for what he calls "the freeing of a direction." [16] We wish by one and the same process to be advanced both intellectually and practically. We are reminded again and again that this is a single endeavor. Nothing is to be satisfactory that merely satisfies the mind; but on the other hand nothing is to be satisfactory that fails to satisfy it. We are not to content ourselves with barren rules; but it is for rules that we are looking.

What we desire both intellectually and practically is *certainty* and *liberty*. "Certainty is when the direction is not only true for the most part, but infallible. Liberty is when the direction is not restrained to some definite means, but comprehendeth all the means and ways possible." [17] On the side of action, a rule of operation which was certain would be bound to yield the result desired, while one which was free would not be limited to certain materials only, but would comprehend every possible material. From the intellectual

[13] *Novum organum*, II, ii, iii; Robertson, 303.

[14] Bacon is perfectly aware of the connection. In *Valerius terminus*, Ch. 11 (Robertson, 198), he tells us that the classic notion of form is a "swimming anticipation" of what he there calls "the freeing of a direction." *Cf. Advancement of Learning*, II (Robertson, 94). It may also be true that the notion of law in modern science has scholastic affiliations, though the connection would probably be more obscure.

[15] *Catholic Encyclopedia*, Vol. 5, 543; *Dictionary of Philosophy and Psychology*, Vol. 1, 341.

[16] I am following here both *Valerius terminus*, esp. Ch. 11 (Robertson, 195–199), and *Novum organum*, II, iv–ix (Robertson, 303–307).

[17] *Valerius terminus*, Ch. 11; Robertson, 196.

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point of view, certainty demands a form which "is always present when the nature is present, and universally implies it, and is constantly inherent in it," while "it is always absent when the nature is absent, and implies its absence, and inheres in nothing else"; while freedom requires that the form be "such that it deduces the given nature from some source of being which is inherent in more natures, and which is better known in the natural order of things than the Form itself."[18] As Bacon points out, there is no formal contradiction between the demands of action and the demands of the intellect. It follows from the above, of course, that Bacon is no empiricist, in the sense in which empiricism has been opposed to intellectualism. Throughout his writings he opposes himself to a mere empiricism, and he always uses "science" to signify more than that collection of facts which was to be its foundation. Intrinsic to science for Bacon is the notion of intellectual mastery.[19] But while Baconian knowledge would conform to the strictest intellectualistic criteria, it would also possess a practical efficacy which the intellectually fastidious might regard as vulgar and irrelevant. Bacon nowhere disparages logic as such, though it is true that he was at pains to exhibit the shallowness of the ordinary logic,[20] and that he often vented his impatience and scorn upon a logic that is barren of consequences in action. He is equally vehement in the denunciation of undirected observation and experiment. It is "a broom without its band," "a mere groping as of men in the dark," "a labyrinth."[21]

At this point it is very important to be clear as to the kind of consequences in action to which Bacon chiefly directed himself. As he himself often puts it, he is after light rather than fruit. The haste to be practical is a great danger to be avoided. The word "use" seldom or never occurs in Bacon's writings without an earnest warning that the principal utility of knowledge from the point of view of human happiness lies in the further invention of arts and sciences. In a long and eloquent passage in the *Advancement of Learning*, for example,[22] Bacon enumerates the various worldly reasons for pursuing knowledge, and rejects them one and all.

> I do not mean, when I speak of use and action, that end before mentioned of the applying of knowledge to lucre and profession: for I am not ignorant

[18] *Novum organum*, II, iv; Robertson, 303.

[19] See the discussion in *Novum organum*, I, lxii–lxv (Robertson, 270–272) of the sophistical (rationalistic), empirical, and superstitious schools of philosophy. Bacon severely criticizes all three schools.

[20] *E.g., Plan of the Great Instauration;* Robertson, 250.

[21] *Novum organum*, I, lxxxii; Robertson, 281.

[22] *Advancement of Learning*, Book I; Robertson, 60. *Cf., Valerius terminus*, Ch. 1, 9; Robertson, 188–189, 194–195: Preface to the *Great Instauration;* Robertson, 245: *De Augmentis Scientiarum*, V, ii; Robertson, 510.

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how much that diverteth and interrupteth the prosecution and advancement of knowledge; like unto the golden ball thrown before Atalanta, which while she goeth aside and stoopeth to take up, the race is hindered. . . . The end ought to be . . . to preserve and augment whatsoever is solid and fruitful; that knowledge may not be as a curtesan, for pleasure and vanity only, or as a bondwoman, to acquire and gain to her master's use, but as a spouse, for generation, fruit, and comfort.

In another place we are told that those who refer the sciences to action and use all too often "mean it of application of that which is known, and not of a discovery of that which is unknown." [23]

Bacon, then, wished to develop a logic which, while it satisfied every intellectual criterion, should also be useful in the course of actual human affairs.[24] The often raised charge, that his logic is without a rational basis, is therefore false, except to those who hold (perhaps with reason) that all rational enterprise finds itself in this predicament.[25] As Bacon himself saw it, his function was that of mediating between the contemplative and active sides of our nature. "I suppose that I have established forever a true and lawful marriage between the empirical and the rational faculty, the unkind and ill-starred divorce and separation of which has thrown into confusion all the affairs of the human family." [26]

Even after one admits the very close similarity of Baconian forms to scholastic essences, the fact remains that the notions differ in the important respect we have already indicated. Sound knowledge, Bacon holds, can only be delivered "in the same method wherein it was invented," [27] and a direction is but "superficial and counterfeit . . . if it do not carry you on a degree or remove nearer to action, operation, or light to make or produce." [28] In fact, "Who-

[23] *Filum labyrinthi,* v; Robertson, 208.

[24] Note how these two considerations are intermingled and seen as one in the following passage (*Valerius terminus,* Ch. 12; Robertson, 199–200): "The discovery of new works and active directions not known before, is the only trial [of truth] to be accepted of; and yet not that neither, in case where one particular giveth light to another; but where particulars induce an axiom of observation, which axiom found out discovereth and designeth new particulars. That the nature of this trial is not only upon the point, whether the knowledge be profitable or no, but even upon the point whether the knowledge be true or no; not because you may always conclude that the Axiom which discovereth new instances is true, but contrariwise you may safely conclude that if it discover not any new instance it is in vain and untrue."

[25] I have discussed the implication for logic of the fact that "mathematically ordered" systems of thought contain irrational elements in a paper entitled "The Organization of Thought," which was published in the Dewey memorial volume, 1929.

[26] Preface of the *Great Instauration;* Robertson, 246.

[27] *Advancement of Learning,* Book I; Robertson, 124. *Cf., Valerius terminus,* Ch. 6, Robertson, 191; Ch. 18, Robertson, 203.

[28] *Valerius terminus,* Ch. 11; Robertson, 198.

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soever knoweth any form knoweth the utmost possibility of superinducing that nature upon any variety of matter.'' [29] The same can not be said of essence. A knowledge of the essence of a thing does not give us the power to produce that thing. This difference is crucial. It suggests that in a world which is conceived of as dynamic, knowledge itself must be conceived of as dynamic. The old familiar hierarchy of ordered things disappears, and its place is taken by a complicated moving series of interactions. These interactions are presumably just as knowable as the things, but there is this difference, that in knowing them we are placed in a position to change them. Knowledge enters the world of action, without loss of her ancient preëminence and importance.

It is worth noting that scientific laws are like scholastic essences in the manner in which the latter differ from Baconian forms. A scientific law is a generalized statement of natural behavior. It does not tell us how to get nature to behave that way. The laws of science were discovered through the use of certain methods, but these methods are seldom if ever communicated by the laws. The point is not so much that scientific laws usually state the asymptotes of behavior. That fact is true enough, and it raises serious questions; but that the laws do not tell us of what particular behavior they are asymptotic is a still more serious matter. It is as though the contours of the investigation were regarded as furnishing the occasion for framing the law, rather than as determining its content. Scientific laws are too far removed from factual conditions in statement, as well as in most cases in derivation and intent, to satisfy Bacon.

Bacon's point of view accords very closely with that enunciated in Bridgman's *The Logic of Modern Physics*. Bacon, however, is free from some of Bridgman's naïvété. Bridgman becomes terrified whenever he thinks that someone may call him a philosopher, and looks upon reasoning as a dangerous though necessary licence of the scientist. Bacon sees the same shortcomings and errors of the mind as Bridgman, but with greater depth and insight ascribes them to a faulty and barren logic. It is futile and unwise to disparage the intellectual powers of man; we must discipline them and put them to use. In other words we must turn the sciences into arts and make the arts scientific. According to Bacon an art is a way of doing, and of necessity involves a way of knowing; while a science is a way of knowing, and of necessity renders articulate a way of doing. Each is an indispensable moment of the other.

If what has gone before is in its broad outlines an accurate rendering of Bacon's views, it follows that he has been greatly misunderstood. The ground of this misunderstanding is not far to

[29] *Advancement of Learning*, Book I; Robertson, 96.

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seek. It has been customary to interpret the philosophy of Francis Bacon in the light of the development of modern science. Because he so earnestly trumpeted a new order, he was regarded as in some sense the founder of the new order that came into being, and those things in his writings which most nearly accorded with what was understood to be its spirit were emphasized. Modern science had to make its way against the stubborn resistance of an intrenched philosophy, and therefore quite naturally either sought to differentiate itself very clearly from the enemy, or affected a contempt of all philosophy. Since the philosophy of the middle ages was Aristotelian, modern science found it necessary to be aggressively non-Aristotelian.[30] And since the most obviously Aristotelian part of the old logic is the doctrine of syllogism, the new logic must be non-deductive. Bacon's clarion call for a new science was understood in this setting, and he has accordingly been regarded as the philosopher of induction. So long as modern science continued to be regarded as primarily inductive in its method—and that means until about the time of Whewell so far as the philosophy of science is concerned—Bacon was regarded as its father. He was the leading intellectual inspiration of the English Royal Society and of the French Encyclopedia. Cowley in his famous ode "To the Royal Society" names Bacon as the man who finally freed captivated thought from its trammels:

> *Bacon* at last, a mighty Man, arose
> Whom a Wise King and Nature chose
> Lord Chancellor of both their Lawes;

while D'Alembert finds himself tempted to regard Bacon as "le plus grand, le plus universel, et le plus éloquent des philosophes." [31] In recent years, on the other hand, with the rise of new ideas regarding the nature of scientific method, it has been the custom of critics when discussing Bacon's methodology to agree with his editor, Ellis, "that the process by which scientific truths have been established can not be so presented as even to appear to be in accordance with it." [32] These critics therefore conclude that Bacon's program for the renovation of science is of no interest or importance to us.

This opinion is almost invariably based upon a quite natural complacency with the achievements of modern science. Science has given us a new world to live in, and in addition it has greatly enriched our minds. That we should respect the donor of these gifts

[30] It is not strange that modern science speedily developed a philosophy of its own. Merely negative positions do not provide rallying points for defence, much less foci for rational organization.

[31] D'Alembert, *Œuvres* (Paris, 1821), *Discours preliminaire de l'Encyclopédie*, Vol. 1, 63.

[32] R. L. Ellis, General Preface to the Philosophical Works; Robertson, 22.

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is not surprising; but it does not seem right that the mind of man should become a vassal to its own creations. Even this magnificent structure is after all a human institution, and therefore subject to all the chances that affect human affairs. Human institutions grow not as they should but as they can, and incorporate into their structure much that a later time will find it expedient to alter or extrude. At any rate, even if Bacon's rejection of the prevailing scientific methods was ill-advised, it was intended. He specifically posed to himself the path actually taken by modern science, and would have none of it. The reasons he gives for his opposition are if anything more cogent today than they were three hundred years ago. The difficulties he raised are real difficulties still capable of puzzling us, and they must be faced and solved if modern science is to be founded as solidly as it deserves. The solution which recommended itself to Bacon may or may not be a feasible one, but in any event he carries us straight to the center of one of the most grievous intellectual problems of our time.

The crux of the difference between Bacon and the course taken by modern science lies in his attitude towards hypothesis. Since this is a matter of the first importance, it is worth going into in some detail. Bacon's position is not that we are to cease making hypotheses. We may make them and use them, but we are not to admit them to the body of science. Even more, we are not to build our science around and upon hypotheses. That the construction of hypotheses is legitimate according to Bacon can be shown in a number of ways. Thus in *Novum organum* he tells us that the understanding has permission,

> after the three Tables of First Presentation (such as I have exhibited) have been made and weighed, to make an essay of the Interpretation of Nature in the affirmative way; on the strength both of the instances given in the tables, and of any others it may meet with elsewhere. [33]

These essays or First Vintages, as Bacon calls them, when mentioned by commentators are usually regarded as fallings from empirical grace on his part. They are, as a matter of fact, an intrinsic part of his thinking. The manner in which hypotheses are to function is shown by Bacon's remarks at the beginning of his *Thema coeli* (Theory of the Heavens): [34]

> Seeing then that there are such difficulties on all sides, we must be content if something be asserted that is not harsh. I will myself therefore construct a Theory of the Universe according to the measure of the history as yet known to us; keeping my judgment however in all points free, for the time when history, and by means of history my inductive philosophy, shall have been further advanced.

[33] *Novum organum*, II, xx; Robertson, 323.
[34] *Thema coeli*, first two sentences; Robertson, 703.

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The activities of the imagination are not to be excluded from scientific research; comparisons, analogies, and even guesses may be employed in the study of nature, but they are never to be considered a part of science.[35] The fifth part of the *Great Instauration* was especially provided to include things which Bacon himself had managed to discover without the use of his method; but these discoveries were to be kept separate, and not merged into the body of genuine science. Again, in the field of human relations Bacon recognized that a certain place must be reserved for "anticipation," if for no other reason "because of the conformity and participation of men's minds in the like errors." [36] The older forms of reasoning, with the philosophies and arts based upon them, will quite properly endure and "be in short like current coin, which passes among men by consent." [37] For such purposes Bacon is of the opinion that his philosophy will be of small use.

Finally and most important, Bacon develops very fully a doctrine of *Experientia Literata* or learned experience, which is to stand midway between mere undirected experimentation and the Interpretation of Nature. Under this heading practically the whole of our science and discovery would fall. Bacon describes it as hardly an art or a part of philosophy, but rather "a kind of sagacity" whereby discoveries are made by proceeding from experiment to experiment, whereas true Interpretation proceeds from experiments to axioms and thence back again to new experiments.[38] He makes it clear that literate experience will yield many discoveries, although the main hope of mankind lies in Interpretation,[39] and is even at pains to further its work by treating the methods of experimenting under some eight headings.[40] His suggestions are too detailed to be summarized here. They discuss the various ways in which new experiments are rightly indicated by experiments that have already been performed, without passage to axioms by that ascending and descending path which is so intrinsic to the Interpretation of Nature.

An excellent example of what Bacon wished to avoid in scientific study can be had by contrasting his remarks on memory in *Novum organum* with Fowler's footnote to these remarks in his edition of

[35] Bacon's own investigations into the nature of heat, reported on in *Novum organum*, II, xi–xx (Robertson, 307–327), as well as in numerous other places, furnish ample evidence of the propriety of using one's imagination in research. See also his remarks on Instances Conformable, or Instances of Analogy, *Novum organum*, II, xxvii; Robertson, 333–335.

[36] *Valerius terminus*, Ch. 15; Robertson, 200.

[37] *Novum organum*, I, cxxviii; Robertson, 299.

[38] *De augmentis scientiarum*, V, ii; Robertson, 504–505.

[39] *Novum organum*, I, ciii, Robertson, 290.

[40] *De augmentis scientiarum*, V, ii; Robertson, 505–510.

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that work.[41] Bacon in discussing what he calls Constitutive Instances has occasion to list the various aids to memory, as, for example, order or distribution, artificial arrangements, rhythmic organization, contact with the senses, the stirring of emotions, the fixing of attention, etc. To Bacon these phenomena point to the need of further researches on the nature of memory, to such work, for example, as Ebbinghaus's classic and Herculean labors with nonsense syllables. Fowler's note to this passage looks in a very different direction. He says, "Most of the mental phenomena as well as the artificial aids to memory here described would now be explained by the doctrine of Association of Ideas." The myriad obfuscations of that hoary doctrine might have been avoided had students of human nature heeded Bacon's warning against the introduction of such anticipations of nature into their science.

Mathematical postulates constitute one of the most important kinds of hypotheses made use of by modern science. When we turn to Bacon's views of the nature and function of mathematics we find him most at variance with the spirit of modern developments. Scholars without exception have found him woefully deficient in mathematical wisdom. Thus in an able essay Broad tells us that "Bacon is paralyzed wherever he touches mathematics, pure or applied. He has no theory of mathematical reasoning."[42] It is, of course, true that Bacon was no practicing mathematician, and he nowhere displays the slightest intimacy with or detailed interest in the mathematical developments of his day, but with respect to the formal bases of ordered thinking his mind was extraordinarily clear—more clear, in fact, than that of most mathematicians until the comparatively recent present. This I shall try to show in a moment, but it is first necessary to point out that Bacon is not antimathematical.[43]

Bacon grants without question that mathematics must be employed in the preparation of the natural history for which he argued. Thus at one point he writes,

[41] *Novum organum*, II, xxvi; Robertson, 331–332. Thomas Fowler, Bacon's *Novum organum* (Oxford, 1889), 428–433.

[42] C. D. Broad, *The Philosophy of Francis Bacon* (Cambridge, 1926), 64.

[43] It has already been suggested that deductive processes have a proper place in reasoning, according to Bacon, though Baconian deduction differs greatly from that employed in mathematics. "La synthèse mathématique diffère tout autant de la déduction pratique de Bacon, qui n'est autre chose que l'application d'un principe trouvé à la production de faits nouveaux. Lorsque l'analyse du mathématicien a trouvé son inconnu, elle part de cet inconnu pour revenir sur ses pas et retrouver le connu; elle fait deux fois la même route en sens opposé, et les deux procédés succèdent consécutivement. La déduction pratique de Bacon regardait comme une frivolité de revenir à son point de départ; c'est qu'elle ne se propose pas d'enseigner des demonstrations, elle veut obtenir des production." Patru, *Esprit et methode de Bacon en philosophie. Bull. de l'Acad. Delphinale*, Grenoble, Vol. 4 (1856), 444.

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Another precept is, that everything relating both to bodies and virtues in nature be set forth (as far as may be) numbered, weighed, measured, defined. For it is works we are in pursuit of, not speculations; and practical working comes of the due combination of physics and mathematics.

And at another point he holds that "Inquiries into nature have the best result, when they begin with physics and end in mathematics."[44] Bacon means by physics the inquiry into material and efficient causes. As a study it stands "in a middle term" between natural history and metaphysics, which inquires into formal and final causes. He is not opposed, then, to the use of mathematics in the study of nature; but he is opposed to the development of a mathematical philosophy. This leads him to recommend that measurements be relegated to the appendices of physics, rather than that they should appear in the body of that science. Mathematics and logic should be the handmaids of physics, and should not "presume on the strength of the certainty which they possess to exercise dominion over it."[45] We should look to mathematics only for statements of fact, and not for ingenious explanations. This is the fault that Bacon finds with Copernicus. His theories "are the speculations of one who cares not what fictions he introduces into nature, provided his calculations answer."[46] Bacon, in other words, was one of that group who felt "that the motions of the heavenly bodies should be traced to their causes, as well as reduced to rule."[47] He regretted the turn of events that had made astronomy one of the mathematical arts when it might have been accounted "the noblest part of Physics."

Bacon objects to the unrestrained use of hypotheses, whether these hypotheses take the form of mathematical postulates or scientific theories, on two general grounds. In the first place, too great reliance on hypothesis makes the advancement of learning depend upon private capacity or good fortune. Science must wait for its very growth and fruition upon the inspiration of an unpredictable happy thought. To the haphazard manner of development in the field of science Bacon contrasts the orderly progress of the mechanical arts. Here the whole process is kept out in the open, so that many wits contribute to one result, whereas in science and philosophy the wits of many are spent about the wit of one. Knowledge gained through Anticipations in large part is locked up in the discoverer,

[44] *Parasceve ad historiam naturalem et experimentalem*, Ch. 7; Robertson, 406; *Novum organum*, II, viii, Robertson, 307.

[45] *De augmentis scientiarum*, III, iv, vi; Robertson, 467, 475–477.

[46] *Descriptio globi intellectualis*, Ch. 6; Robertson, 685.

[47] W. Whewell, *History of the Inductive Sciences* (London, 1857), II, 99. As Whewell points out (I, 295–297, 388–390), Bacon was no dogmatic opponent of the Copernican theory. The difficulties he raised were in his day real difficulties, and were unanswerable until the telescope had been improved.

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"because the mind working inwardly of itself, no man can give a just account how he came to that knowledge which he hath received."[48] Bacon stands foursquare for a communism of learned endeavor. The work of conquering nature through learning her secrets will require the concerted efforts of many men over a long period of time. At this point if at no other Bacon contributed an idea of the first importance to the development of modern science. No other thinker in early modern times makes so prominent the need of coöperative endeavor that lies at the very heart of science. So strongly did Bacon believe in scientific coöperation that the sixth and crowning part of his *Great Instauration*—that part for which all the rest of the scheme was developed—was set aside as the work of future ages.

As Bacon sees it, then, the indiscriminate use of hypotheses renders science esoteric at its very roots. That fault is a grave one, but it is even more serious that a science founded on hypothesis must run straight into a morass of scepticism and confusion. Such a science is without logical foundation, and can only be the parent of grave intellectual disorder, or as Bacon himself puts it:[49]

> The primary notions of things which the mind readily and passively imbibes, stores up, and accumulates (and it is from them that all the rest flow) are false, confused, and overhastily abstracted from the facts; nor are the secondary and subsequent notions less arbitrary and inconstant; whence it follows that the entire fabric of human reason which we employ in the inquisition of nature is badly put together and built up, and like some magnificent structure without any foundation.

The gravest fault that Bacon could point to in the developing structure of modern science was a logical one. Philosophy and the sciences, being products of the vagaries of man's mind, float in air. Our sciences in the end are nothing but conceits. Woven into them are many facts indubitably established, but the pattern itself is an unsupported whimsy of the mind. What we know and what we imagine are so intermingled that there is no possibility of separating the one from the other.

Bacon is pointing out that a science that centers around hypothesis necessarily becomes dialectical. It is driven to speak not about what is, but about what might be. It is unable to talk in simple declarative sentences, but must begin all its propositions with an "if." "If a given mass were concentrated at a certain point, and if that mass were suspended in a vacuum without friction from a given point by a support possessing no mass, then that mass if allowed to swing in a given plane through a sufficiently small arc will obey certain laws which are known as the laws of the pendu-

[48] *Valerius terminus*, Ch. 18; Robertson, 203.
[49] *Procemium* of the *Great Instauration*; Robertson, 241.

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lum." When a pendulum is so defined it ceases to be a natural fact and becomes an entity in logic. It can then be reasoned about, but it can not be exhibited. Bacon would have science deal with entities that can be both reasoned about and exhibited. As the following passage suggests, a science that deals with non-exhibitable entities in no essential respect differs from a religion: [50]

> The use of human reason in religion is of two sorts: the former, in the conception and apprehension of the mysteries of God to us revealed; the other in the inferring and deriving of doctrine and direction thereupon. . . . In the former we see God vouchsafeth to descend to our capacity, in the expressing of his mysteries in sort as may be sensible unto us; . . for the latter, there is allowed us an use of reason and argument secondary and respective, although not original and absolute. For after the articles and principles of religion are placed and exempted from examination of reason, it is then permitted unto us to make derivations and inferences from and according to the analogy of them for our better direction. In nature this holdeth not; for both the principles are examinable by induction, though not by a medium or syllogism; and besides, those principles or first positions have no discordance with that reason which draweth down and deduceth the inferior positions.

A science founded upon hypothesis, in other words, presents only the claim of faith to us with respect to its principles. We may believe the principles if for obscure reasons they appeal to us, but we are not entitled to regard them as statements of fact. Here the main point is not that the principles become suspicious, although, of course, they do; our uncertainty with respect to the foundations of knowledge infects the whole panorama of existence with doubt. The whole world of common sense tends to lose its validity, in favor of closed logical systems whose connections with matter of fact are tenuous and obscure. Some connection there must be—or at least that is the way we are forced to feel [51]—but it escapes demonstration. Bacon discusses this matter in the rather quaint setting of a criticism of the Aristotelian logic, and observes that the mere possession of principles or axioms is not sufficient to save us from scepticism, since we should still need to find the middle terms that would permit of their application to facts.[52] These middle propositions are indispensable in logic and in life, and in the nature of the case they must be declarative, e.g., "This *is* a pendulum."

We find a hopeless predicament of modern thought implicit in these criticisms of Bacon. Modern thought desires to render itself responsible to something outside itself—this is its inheritance from the past—and it is incapable of being anything but dialectical be-

[50] *The Advancement of Learning*, Book II; Robertson, 169.

[51] This necessity would no doubt disappear could we but lose our metaphysical-mindedness. In that event all systems of thought would become only games to play; but most people would not find them worth playing on such terms.

[52] *Advancement of Learning*, Book II; Robertson, 114.

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cause it depends so irrevocably on hypothesis. The penetrating mind of Hume put the matter very nicely when he remarked of certain arguments that "they admit of no answer and produce no conviction."[53] This is the situation in which much modern thinking finds itself. Most contemporary logicians would agree that Hume's phrase excellently describes dialectical thinking, and many mathematicians now look upon mathematics in the same manner. Even in the field of natural science the great achievements have had a dialectical setting. This is the main significance of the work of the greatest scientists, including such men as Newton and Einstein. Their function is not so much to discover new facts as to systematize more fully facts already at hand. Beside their work, of course, there goes on, either with or without their help, the slow, patient Baconian endeavor to know nature. This endeavor is an intrinsic part of the scientific enterprise, but hardly a central element in the philosophy of science.

Modern thinking is thus stubbornly and inescapably dualistic. We are forced by our use of hypothesis to make a distinction between the realm of existence and the realm of meaning or dialectical possibility, between what Hume called matters of fact and the relations of ideas. And since most modern thinkers are too deeply bred in empiricism to believe that ideas are mystically transcendent, this dualism drives us to psychology for light on the nature of ideas. That science is yet too fragmentary to feed us anything but words. Thus the obligations of a faulty logic "do little else than make the world the bond-slave of human thought, and human thought the bond-slave of words."[54] The empirical world tends to become questionable, and opinions about whatever our opinions are about tend to take its place. We are forced to base our commerce with the actual upon an animal faith which, however strongly it may testify to our piety, is nevertheless fundamentally indefensible on rational grounds. We are believers in a secular revelation. As a matter of course, then, our dialectic is powerless to state itself rationally, since it is condemned to start from arbitrary irrational premises and proceed according to arbitrary irrational rules. The history of modern philosophy is thus a dreary record of man's unhappy and impotent state when the masculine and feminine parts of his nature—those faculties of (empirical) intuition and of (rational) poetic elaboration which Bacon wished to unite in holy matrimony—are at odds with one another.

[53] David Hume, *Enquiry Concerning Human Understanding*, Sect. XII, Part i. Hume made this remark about Berkeley; but he also makes it amply clear at other points that his own philosophy did not possess the power to win his own convictions. It too had only dialectical force.

[54] *Novum organum*, I, lxix; Robertson, 274.

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The exasperating dualism of modern thinking might have been avoided had Bacon's counsels been heeded, and the foundations thereby laid for a truly universal philosophy. It is important to note that he took all knowledge for his province, and yet that he in no way belittled natural science. Bacon can not be called either a humanist or a naturalist. To him history includes both the history of nature and the history of man, and the former embraces among other things the history of arts.[55] Or as he once put it, "I consider history and experience to be the same thing, as also philosophy and the sciences."[56] That man is a part of nature is to Bacon perfectly obvious. Had his suggestions been heeded, the basis for a sound science of human nature might have been laid two hundred years before the pioneer psychologists of the nineteenth century, to the inestimable advantage of mankind. In his doctrine of universal perception he lays an ingenious foundation for the study of that complicated interactionism towards which modern thought is today so rapidly moving. This way of looking at man would have assimilated him to the rest of nature, and by obliterating an ancient dichotomy would have rendered human problems soluble on the same terms as the problems of inanimate nature:[57]

> A good explanation of the difference between Perception and Sense should have been prefixed by philosophers to their treatises on Sense and the Sensible, as a matter most fundamental. For we see that all natural bodies have a manifest power of perception, and also a kind of choice in receiving what is agreeable, and avoiding what is hostile and foreign. Nor am I speaking only of the more subtle perceptions, as when the magnet attracts iron, flame leaps toward naphtha, . . . and the like. . . . No body when placed near another either changes it or is changed by it, unless a reciprocal *perception* precede the operation. A body perceives the passages by which it enters; it perceives the force of another body to which it yields; it perceives the removal of another body which held it fast, when it recovers itself; it perceives the disruption of its continuity, which for a time it resists; in short there is Perception everywhere.

This is just a quaint way of telling us that we live in an extremely complicated world in which the lines of connection cross and recross so intimately that no one-way causal progression stands out except by arbitrary choice.[58] In a world of this character dialectical or-

[55] *Advancement of Learning*, Book II; Robertson, 79f.

[56] *De augmentis scientiarum*, II, i; Robertson, 426. *Cf. Descriptio globi intellectualis*, Ch. 1 (Robertson, 677): "Under philosophy I include all arts and sciences."

[57] *De augmentis scientiarum*, IV, iii; Robertson, 496.

[58] It is interesting that Bacon's ethical views are in consonance with this position. They may be summarily indicated by the following passage from the *Advancement of Learning*, Book II (Robertson, 134): "There is formed in every thing a double nature of good; the one as the thing is a total or substantive in itself; the other, as it is a part or number of a greater body; whereof the latter is in degree the greater and the worthier, because it tendeth to the con-

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ganization under the control of hypotheses or postulates becomes inadvisable, and a search for what mathematicians call *functions* becomes all but necessary. Bacon himself may have had small insight into the detailed nature of the new science that would have developed had his principles been followed, but he deserves his meed of credit for having so wisely pointed out the way which science is today at last painfully discovering that it must take if it is to escape the obfuscations that threaten it.

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BOOK REVIEWS

The Present and Future of Religion. C. E. M. JOAD. New York: The Macmillan Company. 310 pp.

"All religion," Santayana has remarked, "is positive and particular," by which he meant to imply that its generic dimension is discovered, if at all, in characteristic activities like myth-making, calendar-celebrating, or shrine-attending rather than in a program of inerrant good universally admirable. Hence the author of a book with this title would have to be concerned with the career of such techniques or guilty of generalizing from his analysis of a specific religion. The discovery that he is speaking, for the present, of the Anglican Church and is anxious for the success in the future of certain social and "spiritual" ideals, conceived by himself as inherently religious, would be a sufficient deflation. A more persistent reader, however, might easily conceive the contents of this book as organized really around three cardinal antipathies of the author: the Church of England itself (especially in its Evangelical and Anglo-Catholic expressions), the genetico-psychological (particularly the Freudian) explanation of human behavior, and the excesses of mob humanity (as discovered notably in war-madness and democratic politics).

An acquaintance with Mr. Joad's previous output, versatile and voluminous, discloses him as a latter-day Sophist in the best English tradition of urbane writing. One would not seek to deprecate his production of miscellaneous reflections were it not for the present congeries. This book is not concerned with the present and future of religion in any comprehensive sense, nor even with a consideration of the practicality of undertaking such a study. Though Joad professes his treatment to be that "neither of a believer nor of a sceptic, but of an absorbed spectator" (p. 5), his valuable discus-

servation of a more general form." He uses this notion to criticize Aristotle's contemplative life as a mere way of private gratification.

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sion of the present vicissitudes of the Anglican Church, in the first half of his book, is blurred by an obvious Modernist bias. Moreover, his observations on the general character of religion, preliminary to outlining its future, are rendered immediately suspect by virtue of his flat assumption that "the fundamental tenets of all the great religions bear a strong family likeness; to all intents and purposes, indeed, most of them are the same" (p. 127). This myopic approach is enhanced by a philosophic predisposition in terms of which, rather than out of the materials of his analysis, he chooses to read religion's future. Numerous divagations interesting enough in themselves, help add to the confusion. Such books as his, no less than veiled apologetic literature or the pasquinades of a Mencken, tend gratuitously to embarrass the efforts of more conscionable students of religion whose ambition is free and unattached analysis. His study gives regrettable point to Professor Dewey's recent observation that "the great solicitude of many persons professing belief in the universality of the need for religion, about the present and future of religion, proves that in fact they are moved more by a partisan interest in a particular religion than by interest in religious experience."

Mr. Joad has marshalled impressive statistical data on the paucity of church-goers, the increase of indifferentism, the difficulty of recruiting students for the ministry. From these facts he concludes that organized Christianity (or at least the Established Church of England to which his attention is really confined) is breaking up. On the other hand he finds religious literature enjoying a wide popularity and a lively current interest in religious questions. It is this seeming paradox which he is concerned to analyze.

The drift from the churches he attributes to three prime causes whose importance is doubtless inverse to the order of his treatment: the disintegration of the Church itself, the impact of science, and the "spirit of the age."

The disintegration within the church is apparent in the existence of three parties continually squabbling over theological peccadillos. The Anglo-Catholic faction covets Roman Catholic verve, and the recent excitement in this country over tactile succession is duplicated in England over the problem of the reserved sacrament. This "clerical fiddling while Rome burns" is a symptom of the Church's remoteness from vital concerns at the same time that it speeds the growing alienation of sensitive and intelligent devotees.

The rôle of evolution is rehearsed in its thrice-familiar havoc. Modern man is said to have developed an increased respect for "evidence" which eschews, for example, witch-hunting on the one hand and assent to a naïve cosmology, on the other. The influence of the

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new science, and more particularly the scientific way of thought, is doubtless great, but doubtless here, as usual, greatly exaggerated. "So far as present indications go," avers Mr. Joad, "it seems not unlikely that science will deliver the *coup de grâce* to organized Christianity within the next hundred years" (p. 72).

The "spirit of the age" is the term which covers the complex picture of our generation in its revolt against Victorian standards, abetted by the new psychology and confirmed by the post-war disillusionment. Psychoanalysis, revealing our actions to be determined by subterranean impulses beyond our governance, has eventuated in a practical fatalism, radically antipathetic to religion. The accommodation of religion to the horrors and duplicities of the war has increased the disrespect for its authority. "The belief in the efficacy of the unconscious has combined with the disbelief in the efficacy of God to abolish ethics" (p. 115). "For the first time in history there is coming to maturity a generation of men and women who have no religion, and feel no need for one" (p. 121).

Having affirmed that the growing generations feel no need for religion, he proceeds to elaborate the contradictory insistence that the need for religion is a "fundamental fact of our natures." He might well have pursued a more fruitful line by attempting to search out the multifarious substitutes offered by our resourceful society for aspects of the traditional configuration. He has already written two books called *Thrasymachus or the Future of Morals* and *Diogenes or the Future of Leisure*. Perhaps he will some day write a book which, dealing with the fractured realignments of the religious pattern in the Western society of our day, he might wish to entitle, after Henry Adams, *Dynamo or the Future of Religion*. In that putative book he will not be so much concerned with the origin, evolution, and ideal fulfillment of religion as with discerning the implications for our society of its accustomed functions being so variously usurped. He might wish to touch on the secularization of morals, the radical transference of faiths, the variety of rival ways of achieving social outlet or satisfying the worshipful. If he were to expand on a salient feature of the religious picture which he here ignores—its mythological structure—he might find men turning more and more for a terrain in which their imagination may roam either to the cosmos which modern physics and astronomy reveal, or, if their taste is more literary (but not less romantic), to those vivid and intimate worlds to which novelists like Mann, Galsworthy, or Proust, practitioners of the most popular mode of modern art, have invited us. He would remark too how, just as in the Middle Ages, what Santayana calls the "Christian epic" took concrete sensuous form, for the less disciplined minds, in bas relief or fresco,

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so today a notable novel is pictorialized at Hollywood or cut in strips for the tabloids. And in the end he would doubtless find the peculiarly beneficent, socially and artistically ramified religious mythology still taking, for persons like himself, a place of precedence.

His prognosis would then emerge out of the resources of this set-up rather than out of the germs of religion's speculative past. The future pictured would then be the realizable entelechy of present trends rather than the conformance to those ideal conditions which, according to his prescription, Christianity must regain or the religion of the future must possess. These he here sets forth as twofold, following the Catechism: a vital political impulse or our duty towards our neighbors, and a genuine mystic inspiration or our duty towards God. "Our relation to the first in what I shall call its religious aspect consists simply in our duty to make it better; our relation to the second in our endeavor, and the endeavor through us of life as a whole, to know it and, it may be, to evolve at a level at which we may enter into communion with it" (p. 197).

Because of the vacuum created by the desuetude of traditional religion, because of the warping of the individual in the vast corporate life of the modern state and the chaos of his social activities, the challenge to harness and integrate these random energies confronts the religion of the future. Though he negates most of their ideals, the spirit which animates Bolshevism and Fascism commends itself to him as to Bertrand Russell. He places little faith in the Christianity which he knows for the attainment of these, his valued ends:

"So far as political ends are concerned I am an old-fashioned Liberal in the wide, a Socialist in the strict sense, regarding liberty and equality, freedom for the expression of every variety of thought and every shade of opinion, and a respect for the rights and the privacy of the individual as paramount social goods. On the economic side I desire to see an equal distribution of material wealth, and would rank myself a supporter of Shaw's programme of equal incomes for all, irrespective of services rendered to the community. Of these social ends which I hold to be valuable, one only, that of equal distribution of material goods, seems to be held in honour in Bolshevik Russia, and even this seems to be less, rather than more, likely to be realised as Bolshevism settles down" (p. 230).

Admiring in Christianity chiefly the sense of social responsibility, he is forced to see its superior realization in the corporate political movements of Russia and Italy. Whether or not the latter are regarded as essentially religious phenomena, the task remains to see this aspect of their activity as part of a larger *gestalt* which, in its numerous parallels to the conventional religious pattern, might well bear further analysis.

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As respects the more private aspect of the religious compound, Joad concurs with his compatriot, Professor Eddington, in basing it upon that lifting collusion with a chiefer being by which mysticism, in our culture, is usually denoted. For Eddington, himself a devout Quaker, and, by profession, inured to the cosmic vastness and the abstraction of its mathematical exploration, such an emphasis is not puzzling. For Mr. Joad, by his own admission untouched by mystic illumination, and by the evidence of this volume a friend to the intellectualistic position typified by Dean Inge and Bishop Barnes, a principle of explanation is harder to find. It is evidently part and parcel of that literalistic platonic disposition elaborately disclosed in his recent *Matter, Life, and Value*. There is, for him, over and beyond this world, a realm of value, glimpses of which occur in esthetic rapture or ethical insight. To the mystic they occur whole, direct, and inexpressible. To attain to such insight is the *terminus ad quem* of the evolution of the human species. Hence, in so far as religion becomes more mystical and human experience, in this sense, more religious, is the race admirably fulfilling its destiny.

Mr. Joad is to be thanked for helping us to understand the struggles of the Anglican Church. He has routed those contemporary psychologists who suppose that once they have exposed the roots of religion it is no longer a tree of life to them that lay hold of it. He is alive to the ineptitude of a purely intellectual appeal, but he makes no attempt to show the inter-relation of those political and mystical trends which seem exhaustive to him.

New York City. Beryl Harold Levy.

Coleridge as Philosopher. John H. Muirhead. (Library of Philosophy.) New York: Macmillan Co. 1930. 287 pp.

As Professor Muirhead states in his preface of *Coleridge as Philosopher*, this work was intended to be one of a series of studies on the History of British and American Idealism and to form a connected view of the Platonic tradition from the seventeenth to the nineteenth century; but the original scope was enlarged in order to show at the same time the work in philosophy Coleridge actually completed. That Coleridge represents a development of idealistic philosophy in England of far greater importance than is commonly accepted, Professor Muirhead has long maintained. Since no scholar in philosophy of his superior gifts has ever attempted to make an extended analysis of Coleridge's philosophical writings, this book becomes at once important by the force of its authority. Many brief treatments—most of them are better called mere sketches—of Coleridge's influence on philosophy exist; but they largely express

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a futility of being able to classify it clearly, and not a few of them are quite mute in their indicating any idea of its position in the history of English thought in the nineteenth century. Disregarding the myths that have grown up around Coleridge and his philosophy, Professor Muirhead with his well practised mind in metaphysical research rescues his subject from most of the misconceptions that have persisted all too many years. The principal criticism directed toward Coleridge is that he had no defined system, and that which might be drawn from his writings is too incoherent and fairly buried in verbiage. Granting that he often loses himself in mazes of speculation that are beyond any designed purpose, there is to be found, despite this general fault, a more translatable system than is ordinarily understood. The incomplete state of his writings, both published and unpublished, renders also the task of any critic much greater; manifestly, however, this has not deterred Professor Muirhead from not only giving an analysis of what Coleridge attempted in creating a basic philosophy, but also an appreciation of what influence this had in its relation to his treatment of nature, science, ethics, esthetics, politics, and religion.

Professor Muirhead's work has been considerably enhanced in originality and significance on account of his being able to examine unpublished remains of Coleridge's philosophical writings, some of which fortunately contained proofs of his belief gathered from the published ones that "as a stage in the development of a national form of idealistic philosophy his [Coleridge's] ideas are far more important than has hitherto been realized either by the educated or by professed students of the subject." That a large mass of Coleridge's writings still remains unpublished is well known to students of him to-day, though his critics and biographers of the past have largely overlooked this material. If there had been an intelligent effort made to study these manuscripts after they had been neglected or ignored by his principal editors following his death, there would not be now persisting the general belief that he spent the last twenty years of his life talking, or that the only work accomplished was of fragmentary nature. It is true that what he planned to write in his last years would have taken perhaps another life-time or two to complete; but if he did not write his Epic, or finish his Logic or the Magnum Opus which was to revolutionize "all that had been called Philosophy or Metaphysics in England and France since the era of the commencing predominance of the mechanical system at the restoration of the second Charles," he did complete enough of the two latter projects to have a new appraisal made of his industry as well as a better understanding of his works. The popular fallacy of his being a mere visionary should be somewhat adjusted as soon as

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the editing of his manuscript remains, now under way, is completed and published.

The book is chiefly outstanding for its chapters on Coleridge's Logic, Metaphysics, and Philosophy of Religion, although this selection does not seek to minimize the importance of the exceptionally interesting ones on his philosophical development and his Moral and Political Philosophy. The chapter on the unpublished Logic demands more attention, however, because of its relation to Coleridge's idea of working out a system in metaphysics, or philosophy in its widest meaning. This grand project had to be preceded by a system of logic and with a consideration of its effect in the sciences, politics, law, religion. As a foundation for his *Opus Maximum* it sought to clarify the scientific treatment of the functions of thought and define the limits of the science of logic. That he was quite aware of the futility to develop postulates and principles in logic which could be used separately from philosophy, he acknowledges at the beginning of his undertaking. *Noetic,* or the Science of Nous, is the ultimate in thought, he knew; but he believed that logic as the science of *logos* could be developed as other sciences; that is, its thought, regardless of its truth in the end, is not dependent on its object. He does not go beyond the traditional reasoning in this field; but he comes to the conclusion that if merely analyzing a syllogism is all that logic signifies then it is only "a hollow science." One strikingly original note, Professor Muirhead observes, is that Coleridge treats of logic in its relation to psychology. He saw, though only dimly, the connection between apperception and inference—a fact which has changed both modern logic and psychology. If he had not been too greatly hampered by classical modes of logical thinking, he might have developed his idea that "the main object of logical investigation is most often the establishment of the object itself, which, when once established, contains, or rather is coincident with its influences," and "not only must we have some scheme or general outline of the object, to which we could determine to direct our attention, were it only to have the power of recognizing it, or, as the phrase is, bring it under our cognizance when perceived; but the very senses by which we are to perceive will each again require the aid of a previous scientific insight."

The second part of the unpublished Logic contains the first exposition in English philosophy of Kant's logic in his *Critique;* but Coleridge has made no original contribution to it, except in his refusal to follow Kant's assumption that there was no plane of thought beyond the transcendental analysis, or as Coleridge reasons, "considered as Logic it is irrefragible, as philosophy it will be exempt from opposition, and cease to be questionable only when the soul of Aris-

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totle shall have become one with the soul of Plato, when the men of *Talent* shall have all passed into the men of *Genius,* or the men of Genius have all sunk into men of Talent. That is *Graecis Calendis,* or when two Fridays meet."

That Coleridge's philosophy has its foundation in his theology is a statement only too easily made by the reading of his works, and it is one that Professor Muirhead fully recognizes in his discussion of Coleridge's Metaphysics. Coleridge declares that "the doctrine of Ideas is antecedent, but only because ancillary, to the more important truths, by which religion rises above philosophy," yet if his theological dogma is too often more strongly assertive than his philosophical doctrine, there is always the one dominant aim in his efforts—to establish a metaphysical basis of his system. He was only perpetuating a philosophical heritage in linking religion with philosophy, and his connection to the Neo-platonic school is obvious, especially in reference to the theory of the Trinity. His vast reading in the "Platonizing divines," as he calls them, Leighton, Baxter, Hooker, and Taylor, was an effort to get a historical view of the Trinitarian idea of the Church as well as to use it in his own beliefs. In this search for evidences of "eternal truths," he, of course, more than often loses himself in theological dogmas, and saves himself only from submergence in them by his determination to show that in Christianity was the true explanation of the spiritual mind. Since it is a great question whether he ever intended to make a separation of theology and philosophy, it is difficult to make a sharp distinction between them as he conceives the two. He has called philosophy, *theognosy,* for in a knowledge of God all knowledge is possible. In view of such a conception theologians may be justified in approaching his speculations from a Biblical or Christian angle, though they fail to interpret him on a basis of purely philosophical terms. The philosopher must take his expression *Absolute Will* instead of *God as Being,* since in the *Will* may be found the springs of experience and reason. The attainment of the idea of God through religious experience must give over to scientific experience; the supreme reality can not be obtained through sensory or logical process, but it must be established in the same manner as other knowledges, e.g., mathematics. He writes in one unpublished manuscript: "I look around in vain to discover a vacant place for a science, the result of which is to the knowledge and ascertainment of God, i.e., of the reality and existence of the Supreme Being in the absence or rejection of the idea as the Datum, and the result anticipated and precontained in the premise." His religion had to be justified through philosophy, but it must be worked out by practical reason and not by pure speculation. As reason is "the source

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and substance of truths above sense," Coleridge demands that in the contemplation of God man should rid his mind from sensory forces. Plato reasoned that before truths in metaphysics can be determined man's mind must be made independent of the senses through the discipline of geometry, thus in like manner does Coleridge believe that the initial step towards a religious or philosophical truth is to ignore the concrete and visible.

Professor Muirhead's examination of Coleridge's writings has contributed to a fuller understanding of the poet philosopher's position he must hold in the history of Anglo-Saxon idealistic philosophy. To Coleridge must be assigned the credit of first realizing the impotency of the spiritual thought of his day, and his ability to give expression to what was only vaguely felt in making religion and philosophy more practical places him as a forerunner of the revival of metaphysical study in the nineteenth century. Since his time, no thinkers in idealistic philosophy can quite escape his insistence on God as Will, for on this one dictum is the basis of most of their writings. In him also was conceived the idea of Personeity, or that "personal being, having the *causi sui,* or ground and principle of its being, in its own inexhaustible causitive might." Professor Muirhead believes that Coleridge anticipated in his interpretation of this idea the best that later idealism has to give on the subject. In the field of psychology of religion he stands unique. He had grasped what psychologists have only begun to see in recent times.

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Textbook of Logic. A. WOLF. New York: Macmillan Co. 1930. Pp. xiv + 323.

Without doubt there are many who think it still possible to teach the traditional logic in the traditional way. And, indeed, compactness and a real wealth of new illustrative material is a dignified achievement in itself. Among books of this class the present work is a real competitor to the famous one which Jevons wrote so many years ago. From so many sources of new light that belong to our own day hardly a ray falls to illuminate these matters that are old. But should not the teaching of science keep pace with its advance? Must not the teacher of a tradition interpret that tradition whole? Should our "new" student discuss these matters with his "old" tutor their argument might run like this:

Student: If it is true that a is a class and b is a class does it follow that what is a and b is a class?

Professor: That depends on whether a and b have objects in common.

Student: In the contrary case why not say that what is a and b

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is an empty class? That would be so convenient, because then we could substitute in our formulas not only "single" classes but "products" of classes as well. But tell me, this "universe of discourse" to which you refer in the text and which is made up of any class and its negative, is this universe a class?

Professor: Yes, I should think that it is.

Student: Then what would its negative be? You see, while letters like *a, b, c,* occur in our formulas, their negatives sometimes occur too. I should like to know what to substitute for non-*a* when *a* becomes universe.

Professor: I see you are trying to make me accept your newfangled notion of an empty class. I shall lay it down as a rule that no class or its negative can become as large as the universe.

Student: That limitation seems to me to destroy the generality of the science.

Professor: It covers the cases that occur in practice. But even *Principia Mathematica* does the same sort of thing when it says that its variables are limited to "propositions."

Student: An appeal to authority, however distinguished, is still an appeal to authority. But tell me, how would you interpret *celarent* for the case in which the major and minor terms become contradictory as a special case? Let us write it out on the board.

Professor: I should say that the inference is true but not valid (*Textbook of Logic,* p. 6).

Student: Yet *celarent* is called a valid mood of the syllogism. How would you interpret the same mood when the terms in the major premise have been identified. Let's write that out too.

Professor: That has a queer look. Perhaps I should have to say that the terms in the syllogism must remain distinct.

Student: Another limitation with a corresponding loss of generality. I was going to ask you to give up that distinction of "true but not valid" and allow me to call the major a null proposition in the case supposed. Then the consequent would "follow" since the antecedent is absurd.

Professor: But that is not what we mean by inference.

Student: May it not be that we shall have to generalize the meaning of inference, just as the mathematician does when he redefines quantity so as to include the case of imaginaries? May it not be that this is what inference will have to *come* to mean?

Professor: I am afraid that you are going to "reform" the science out of existence.

Student: If there is no other way we can only try and see. The ancient science cries for reform and half measures will hardly be of much avail.

HENRY BRADFORD SMITH.

UNIVERSITY OF PENNSYLVANIA.

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Cohen, Morris R.: Reason and Nature. An Essay on the Meaning of Scientific Method. New York: Harcourt Brace & Co. 1931. xxiv + 470 pp. $5.00.

England, F. E.: Kant's Conception of God. A Critical Exposition of its Metaphysical Development together with a translation of the *Nova Dilucidato.* With a Foreword by G. Dawes Hicks. New York: Lincoln McVeagh. The Dial Press. 1930. 256 pp.

Gentile, Giovanni. La Filosofia dell'Arte. (Opere Complete di Giovanni Gentile.) Milano: Fratelli Treves Editori. 1931. viii + 377 pp.

Overstreet, H. A.: The Enduring Quest. A Search for a Philosophy of Life. New York: W. W. Norton & Co., Inc. 1931. xii + 277 pp. $3.00.

Smart, Harold R.: The Logic of Science. New York: D. Appleton & Co. 1931. v + 237 pp. $2.50.

NOTES AND NEWS

The First International Congress for the Psychology of Religion will be held in Vienna, May 25–30, 1931, under the auspices of the International Society of Religious Psychology. The chief topic for discussion is: The mental causes, contexts, and complexes of unbelief. Programs and information concerning accommodations may be secured from Dr. Karl Beth, Zitterhofergasse 8, Wien VII, Austria.

Paul Weiss is resigning his position as instructor and tutor at Harvard University at the end of this semester, to become an associate at Bryn Mawr College.

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The Journal of Philosophy

KANT'S PHILOSOPHY OF PEACE AND WAR

KANT'S views on peace and war are best known from the essay *Zum ewigen Frieden,* published in 1795, with a second edition in the following year. It is recognized also that the subject had engaged his attention throughout the decade preceding this famous essay and that he considered it in other writings of the time. The *Idee zu einer allgemeinen Geschichte in weltbuegerlicher Absicht,* 1784, emphasized the part of war in the evolution of culture. The close of the *Muthmasslicher Anfang der Menschengeschichte,* 1786, contained notable estimates of the evils and the benefits of war. In the discussion *Ueber den Gemeinspruch: Das mag in der Theorie richtig sein, taugt aber nicht fuer die Praxis,* 1793, Kant renewed the suggestion of a federation of nations, already announced in the *Idea for a Universal History,* as the goal of civilization and the basis of enduring peace. The *Rechtslehre,* 1797, dealt with these great matters in connection with the Kantian philosophy of law.

Further references or statements of Kant's positions have been noted— and the list is not complete—in the *Kritik der Urtheilskraft,* 1790, the *Religion innerhalb der Grenzen der blossen Vernunft,* 1793, the *Streit der Fakultaeten,* 1798, and the *Anthropologie in pragmatischer Hinsicht,* 1798. It will be noticed that the last two, like the *Rechtslehre,* are of later date than the *Perpetual Peace,* as the *Anthropology,* also, was the final extended work entirely from Kant's own hand. At the other extreme, there is reason to believe that the problems of war and peace had been in his mind long before he began to discuss them in print. Vorlaender in his monograph *Kant und der Gedanke des Voelkerbundes*[1] cited passages from the posthumous papers which tend to show that Kant was thinking on the question as early as 1755–56. If this was so, his reflection extended over more than forty years; and the *Zum ewigen Frieden* is the culmination of long continued study, much influenced in its later stages by the events of the Revolution in France, in which, as is known from many sources, he took an active and sympathetic interest.

The *Perpetual Peace* was hailed with enthusiasm on its first appearance, although some critics classed it with the utopias of earlier

[1] Pp. 15–18. There are many references, some of importance, pertinent to the general subject, in Erdmann's *Refexionen Kants,* Reicke's *Lose Blaetter aus Kants Nachlass,* etc., etc.

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dreamers. And it has remained one of the landmarks of the discussion ever since, as well as one of the most celebrated of Kant's shorter works. Beginning with the disarmament proposals of the Czar of Russia in 1899 and the Peace Conferences at the Hague, it has been often cited, or combatted, in connection with recent movements for the control or the abolition of war. As these have become more numerous since 1918 and as they have achieved a larger measure of success than heretofore, the advocates of peace have again and again appealed to the authority of Kant in support of their own endeavors to establish a new order of international affairs.

Dissenting voices have not been lacking, on the other hand, even among those who have taken Kant's proposals seriously, and it is worthy of notice that many of the criticisms repeat themselves from the start. The Kantian ideal is unattainable, it is proclaimed, until men shall have themselves become ideal. Or Kant proposes the destruction of independent nationality, at very least the weakening of national vigor, in favor of a world-state. And the objection, familiar among the evasions of to-day, that peace is to be brought about, not through international organization, but by the cultivation of right principles and peaceful sentiments in the minds of men. Some objectors have even had the hardihood to claim Kant as an advocate, not of peace, but of war itself, although these have been popular controversialists rather than careful interpreters of the Kantian texts.[2] Their arguments of course are misinterpretations. Not only do they cut text from context, they tear Kant's conclusions out from their articulation in the movement of his thought. It is true that he did not look on war as an unmitigated evil *at every stage of human culture.* He recognizes the virtues of the soldier, courage and self-sacrifice for over-individual ends. War draws the different classes in the community into closer mutual touch through the need of action for the common good. It even makes to a degree for the liberty of the subject as it constrains the ruler to consider him in order to secure his service.[3] If inner conflict did not lead to the formation of the state, a people would be driven to it in order to combat its neighbors with united forces.[4] Above all it promotes the external relations of states, since the miseries which it causes impel them to substitute international organization under law for the lawless condition prevailing prior to the establishment of an international system. Although the hostile peoples do not realize

[2] So Ferd. Brunetière, *cf.* Vaihinger, *Eine franzoesische Kontroverse ueber Kants Ansicht vom Kriege,* Kantstudien, IV, 50–60; and K. Frhr. von Stengel, *Der ewige Friede,* 1899.

[3] *Muthmasslicher Anfang der Menschengeschichte, Werke* (Academy ed.) VIII, 120–121.

[4] *Zum ewigen Frieden, Werke,* VIII, 365–366.

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the fact, war is the instrument employed by Nature—or Providence—to bring the nations out of anarchy into an external juridical order, as the attractions and repulsions among individual men, their *unsellige Geselligkeit* in Kant's picturesque phrase, lead to the contract through which the single state is formed. The warlike stage of culture, therefore, tends to its own term. The goal of history is a world-order regulated by law which is grounded in a federalism of free states. Such a federal organization will make for perpetual peace. And such political organization, inner and outer, is the only condition in which the original capacities of the race can be developed to their completion.[5]

These considerations refute the claim that Kant in essence favored war. On the contrary, there have been few who have condemned it more resolutely than he, although he recognizes its relative value as an instrument of higher culture. By implication, also, they further the rebuttal of a second objection, in whose support citations may with greater color of reason be made from Kant's own writings. This is the charge that Kant was not entirely in earnest with his ideal of perpetual peace, that he hedged it about with conditions which render his proposals nugatory, in sum, that he realized the fact that a permanent state of international peace is unattainable by man.[6] As just remarked, some ground for this contention is found in Kant's own statements. He is aware of the obstacles which stand in the way of his ideal: the selfishness of individuals and of nations, the tendency of states to follow the path of expansion and conquest, the folly of rulers who, as he believes, wage war almost as a game, heedless of the suffering and the loss which they bring upon their subjects. He appreciates as well the difficulties, in principle and of practice, which beset the establishment of a league of independent states. So he is led to express doubt—more markedly, it would seem, as the years go on—whether the literal realization of his ideal is to be considered possible. As government by a world-state is impracticable, he remarks toward the close of the *Rechtslehre*,[7] *so ist der ewige Friede, (das letzte Ziel des ganzen Voelkerrechts,) freilich eine unausfuerbare Idee.* And in the last section of the *Anthropology* he speaks of union into a cosmopolitan society as an Idea in itself

[5] *Idee zu einer allgemeinen Geschichte in weltbuegerlicher Absicht, Saetze,* 4, 5, 7, 8. It has sometimes been maintained by the defenders of Kant that this appreciation of war as a means to peace had been abandoned by the middle of the '90s when he published *Zum ewigen Frieden* (*cf.* Vaihinger, *op. cit.*). But the conclusion seems doubtful except, perhaps, in the sense of relative emphasis. *Cf.* from Kant's later discussions: *Ueber den Gemeinspruch: Das mag in der Theorie richtig sein, etc.*, III. *Zum ewigen Frieden*, 2 *Abschn.*, 1 *Zusatz; Anthropologie, Werke*, VII, 321–322, 330–331.

[6] *Cf.* Von Stengel, *op. cit.*

[7] §61, *Werke*, VI, 350.

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unattainable, which is not to be taken as a constitutive principle of peace, but merely as regulative of action toward this goal.[8]

Again, Kant's discussion strikes a higher note, often in immediate connection with these passages of doubtful or negative import. He dwells with satisfaction on the signs of the times which indicate a gain for peace or tendencies which make for its promotion: the influence of the experience of the miseries of war, the stirring news from France as the people asserts its right to determine its own constitution by the establishment of a government of a republican type, the forces which bring nations together, including the spirit of trade. Anon, renewing the inference from history, he pictures nature itself as furnishing the guarantee of perpetual peace.[9] Or he rises above the argument from experience altogether as he dismisses the concrete factors in the case and resumes his rôle as the philosopher of *a priori* reason reflecting on human problems from the transcendental point of view. A state of war, he teaches, does not necessarily imply warfare, actual hostilities. The nations are in a state of war so long as their relations are not regulated by law, obligating each to peace through the will of all. The principle of such a constitutional order is not derivable from experience, but only through the *a priori* analysis of the *Ideal einer rechtlichen Verbindung der Menschen unter oeffentlichen Gesetzen ueberhaupt*,[10] and its establishment is a matter of duty. For the ideal of peace is grounded in the authority of reason itself—reason functioning in its practical form—so that the empirical question of its practicability is beside the mark.[11] This point has been overlooked by the critics because of their unfamiliarity with the Kantian system, or it has been neglected by them. In their first objection certain of Kant's conclusions were torn from their context in his analysis of war. Here the fault consists in the failure to recognize the connection between his views on peace and his philosophy as a whole. Perpetual peace is a standard or goal to be approached by gradual, perhaps by an infinite process. In this respect it is like other *Ideen* or *Aufgaben* of practical reason. They are not given as empirical facts, they may never be completely realized in an experience. They are tasks or standards imposed by the moral legislation of reason; hence our conduct must be governed and directed in accordance with them. The confusion of such teaching with the dreams of the sentimental pacifists or its interpretation as an admission that enduring peace is a chimera, is a distortion of Kant's position. On the contrary,

[8] This is brought out by Vorlaender, *op. cit.*, 59–60. The Kant reference is *Werke*, VII, 331.

[9] *Zum ewigen Frieden*, 2 Abschn., 1 Zusatz.

[10] *Rechtslehre*, *Werke*, VI, 354–355.

[11] *Zum ewigen Frieden*, 2 Abschn., 1 Anhang.

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as he puts it in the concluding paragraph of the *Perpetual Peace: so ist der ewige Friede . . . keine leere Idee, sondern eine Aufgabe, die nach und nach aufgeloest, ihrem Ziele . . . bestaendig naeher kommt.*[12]

The question remains concerning the relation of the Kantian principles to recent movements for international peace. Unfortunately a complete answer to this question is not possible. In part, Kant did no more than sketch in his theory, and even with varying outlines. In part, the difficulty arises from the differences between the Europe of his day and the Europe of the present age, together with the world at large, and from the fact that, for all his forward look, Kant could not entirely escape the limitations of his time. It is evident that the conditions of war and peace, like the conditions under which political bodies function and the various states have relations with one another, have greatly altered since the time at which Kant wrote. Then Europe was beginning to emerge from the bondage of dynastic polity through the influence of the Revolution. Now democracy has made its bid for power, with popular rule resulting at the one extreme and dictatorships, individual or communistic, though both may be temporary, at the other. And there can be no need to enlarge upon the numerous factors outside the political field. Everyone will recall manifold ways—scientific, philosophical, economic, moral, religious, social—in which the time of the essay *Zum ewigen Frieden* differs from our own.

It is certain, nevertheless, that in spirit Kant would have sympathized with the later movements toward established peace. And it is noteworthy that several of his definite proposals run closely parallel to those of the present time. For example, the condition that standing armies are in time to be abolished, though they may be replaced by national militias for purposes of defense. And his condemnation of offensive war, since defense against aggression (actual or potential) [13] is the only warfare worthy of a moralized nation, together with his ideal of perpetual peace. Disarmament, therefore, and the abolition of war evidently come within the scope of the Kantian plan. On the other hand, the nature of the international organization designed to bring these ends to pass and the procedure through which it will seek to realize them involve more

[12] *Cf.* J. G. Fichte, *Werke*, III, 12 note**: *Kant zeigt, dass diese Idee eine Nothwendige Aufgabe der Vernunft, und die Darstellung derselben ein Naturzweck ist, den dieselbe ueber kurz oder lang erreichen wird* . . . A clear and forcible presentation of the Kantian position is given by W. Moog, *Kants Ansichten ueber Krieg und Frieden*, 103–106.

[13] Kant admitted preventive war *im Naturzustand der Voelker*, prior to the establishment of an international legal order. *Cf.* Moog, *op. cit.*, 90–92 and the *Rechtslehre*, §56, which Moog quotes.

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doubtful questions. Kant's federation of free states may in certain respects be compared to the Peace Conferences at the Hague and the international agreements which resulted from them. In later years it has been definitely assimilated to the League of Nations. Most recently it has been maintained that the Kellogg-Briand Pact in essence corresponds to the Kantian programme.

As just remarked, the decision here can not be complete or absolute. A summary statement of Kant's position, however, may furnish the basis for a considered judgment. He described the proposed federation of states in various ways. In reason, it is a *Voelkerstaat,* a *civitas gentium,* analogous to the union of individuals under law within a single state and issuing from the social contract.[14] But many difficulties hinder the establishment of such a political body. A world-state—especially in the form of a universal monarchy, achieving union and peace through conquest—would tend to despotism and in the event to anarchy. Its extent would obstruct the processes of government and the protection of outlying members of the league. Individual states would be unwilling to accept the alteration of sovereignty involved and the submission to coercive public laws. The union of many nations into a single state is even declared to imply a contradiction, since it is the relationship among separate states that is under consideration.[15] Much more frequently, therefore—and this may be called its standard designation by Kant—it is described as a *Voelkerbund,* a voluntary union of free peoples. In certain passages this is compared to the Amphictyonic Councils in Greece.[16] It is a federal organization of the several states, or of a group of neighbor states, in substitution for the world-state, which has been found impracticable. So Kant terms it a federation of free states, or a *Genossenschaft* (*Foederalitaet*), or a *Bundesgenossenschaft,* or a *Foederalismus,* etc., the more abstract terms tending to appear more definitely in his later discussions of the subject. At length, in the *Rechtslehre,*[17] he calls it a *permanenter Staatencongress,* like the sessions of the States General at the Hague in the early part of the century, at which, as Kant puts it, the ministers of the principal European courts, and even of the smallest republics, considered as though they were arbitrators the complaints of one nation against another and decided international controversies as it were by civil process.

If it should prove that such a federal organization can not be

[14] *Das mag in der Theorie richtig sein etc., Werke,* VIII, 312–313; *Zum ewigen Frieden, Werke,* VIII, 356–357.

[15] *Zum ewigen Frieden, Werke,* VIII, 354, 367. *Cf.,* the citation from Kant's *Lose Blaetter,* Moog, *op. cit.,* 100.

[16] *Idee zu einer allgemeinen Geschichte,* etc., 7 Satz; *Rechtslehre,* §54.

[17] §61, *Werke,* VI, 350–351.

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fully realized, it would still remain the normative basis for international law and the promotion of peace. In this case, also, such approximations to it must be sought and such arrangements created as best would serve in lieu of the completely organized association. The Kantian programme, then, distinctly includes the elements of an international league. Herein it transcends the provisions of the Kellogg Pact and parallels the plan of the League of Nations more nearly than that of any other of the later movements for the furtherance of peace. Kant does not elaborate his plan in its details. To judge, however, from the indications which he does supply, the present League is more closely knit together in its organization, as, it should probably be added, it is more complexly framed, than the *Bund* which he had in mind. None the less the federal idea is central in his thought.

Similar conclusions follow from the consideration of the purpose of the *Voelkerbund* and of the functions it was intended to exercise. The ultimate goal is perpetual peace issuing from the substitution of the federal relationship of nations in the place of their original lawless condition. The federation does not seek any of the powers of a state: its sole aim is the *Erhaltung und Sicherung der Freiheit eines Staats,* for itself and for other allied states. So in the *Perpetual Peace.*[18] Elsewhere Kant speaks not merely of the mutual security provided by the federal organization of international law, but of the common defense of member states, even the smallest, against attack[19] and the determination of their rights according to laws deriving from the collective will.[20] And at least once he brings forward the idea of the adjustment of international issues by arbitration.[21] The Kantian proposals then include more than the limitation and eventual abolition of war. Suggestion is made also of the means by which this ideal may be led up to, of concerted measures through which its realization may be brought more near. If these are suggestions rather than developed plans, if they are made by Kant in different passages with varieties of emphasis, if they show to some extent the influence of the time or of traditional points of view come down from earlier writers—these limitations apply to other phases of the Kantian discussion as well. And if, finally, it should be asked how Kant would formulate his conclusions, were he reaching them under the conditions of life and thought to-day, the answer that has been already hinted is the only one that can

[18] *Werke,* VIII, 354, 356.

[19] *Idee zu einer allgemeinen Geschichte,* etc., Werke, VIII, 24; *Rechtslehre,* §§ 54.3, 59.3.

[20] *Idee zu einer allgemeinen Geschichte,* etc., *loc. cit.*

[21] *Cf. Rechtslehre,* §61, and Vorlaender, *op. cit.,* 55–56; also, perhaps, *Idee zu einer allgemeinen Geschichte,* etc., *Werke,* VIII, 28.

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reasonably be given. There exist no reliable data for a definite reply. Any attempt at an answer must be based on conjecture alone.

A. C. ARMSTRONG.

WESLEYAN UNIVERSITY.

IMMANENCE–TRANSCENDENCE

RECENT cosmology is exhibiting a marked tendency to emphasize *immanence* in one form or another, and to ignore or depreciate *transcendence*. It is the purpose of this article to endeavor to show that the concept of immanence requires that of transcendence to fulfill it, and that the attempt to force them apart and magnify one at the expense of the other ends in the loss, or obscuration, of the essential meaning of both.

I

The concept of immanence means, I take it, that there is an entity, or value, in experience, that may be differentiated from the totality at least so far as to be contemplated and evaluated, in some measure, by itself. While the term, as such, might be applicable to any distinguishable element in experience, it is customary to designate it by what is known as *spiritual*.

Intending, then, by the *immanent* the spiritual factor in experience,[1] the thesis I wish to maintain is that this higher entity—whatever it may be—in order to be distinguishable *within* the experienced whole shows, by virtue of that very fact, that it is also *beyond*, or *above*, it. Conversely, the transcendent, in order to be conceived at all, can not be wholly outside of the totality of experienced entities and relations, but, while not confined to it, is present and potent in the cosmic-human Whole. The transcendent, in other words, is not something *thought out* in the realm of pure reflection and then "imposed" upon experience by philosophy, as John Dewey would have us suppose, for pure reflection, apart from all experience, is pure assumption. The question is whether in any given instance, interpretation is too remote from the experience to interpret it rightly. The *experience* of transcendence, that is, is the vital source of the *idea* of transcendence;[2] but it is not a disjunctive experience. Immanence and transcendence, in other words, are both involved in experience and should no more be separated than space and time. Indeed immanence-transcendence might well be hyphenated, like space-time.

[1] By experience is meant the total content of consciousness.

[2] There is, to be sure, another meaning of transcendent than that here used which regards the transcendent object as existent but unknowable; but to be aware of it at all brings it within the confines of experience, in some degree.

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II

The tendency to force immanence apart from transcendence and use it as an independent category is widely prevalent at present. One may find it, for example, in an extreme form, in the realism of Samuel Alexander, with his conception of a *nisus* in the evolving cosmic process toward Deity. Since Deity is held to emerge from elemental space-time at its highest developmental level, this is, of course, fundamentally *naturalism*. The "natural piety" which arises toward the emerging spiritual quality, or "Deity," may perhaps by sufferance be termed religious, but if so it is an attenuated and one-way form of religion, involving as it does, no conscious response on the part of Deity.

Professor Whitehead, enlarging the scope of immanental realism, emphasizes the *human* element in the developmental process. In his "philosophy of organization" God is both *antecendent* and *consequent*. He is "the principle of concretion" who, or which, gathers up and conserves all that emerges of higher quality in the course of cosmic and human development and thus becomes what humanity has termed God, i.e., "that constitutive principle which rallies the whole universe to the making and sustaining of every concrete thing." [3]

> Thus the consequent nature of God is composed of a multiplicity of elements with individual self-realization. It is just as much a multiplicity as it is a unity; it is just as much one immediate fact as it is an unresting advance beyond itself. Thus the actuality of God must also be understood as a multiplicity of actual components in process of creation. This is God in his function of the kingdom of heaven. Each actuality in the temporal world has its reception into God's nature. The corresponding element in God's nature is not temporal actuality, but is the transmutation of that temporal actuality into a living, ever-present fact.[4]

This is the apotheosis of immanence—eventuating in a humanistic, immanental, developmental divinity. A certain religious atmosphere undoubtedly attaches to this antecendent-consequent God. It even takes on the aspect of love, under the wizard philosophic touch of Professor Whitehead. "The image—and it is but an image—the image under which this operative growth of God's nature is best conceived, is that of a *tender care that nothing be lost.*" [5]

Such imagery attached to the principle of concretion is attractive. But is it justified? The "tender care" is manifestly not that of a conscious unitary Personality, but only that of a cosmically originating emergent element in humanity directed toward itself. We are familiar with this form of religion under the term "humani-

[3] *The Making of Religion*, p. 90.
[4] *Process and Reality*, p. 531.
[5] *Ibid.*, p. 525 (Italics mine).

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tarianism''—although with the emphasis upon *care* rather than *tenderness*—and of late we have come to know it in a fresh *Ausdrück* as humanism. There is much that is admirable in it, but is this the soul of religion?

Lloyd Morgan's emergentism presents a more definite and purposeful conception of divinity, but also one that remains—or is intended to remain—strictly within the confines of the cosmos. His idea of a *purposeful* direction that is wholly within, and not also above the developmental process, leaves the mind in perplexity.

> According to emergent evolution we find and loyally accept a series of ascending steps in advance as we pass from natural entities of lower to those of higher status; and in the evolution of that which we deem the highest of natural entities, a man, these steps afford instances of a determinate plan which includes the evolutionary progress of all relevant events in him, alike in physical and in mental regard.[6]

This recognition of a ''determinate plan'' would seem to require transcendence,—though not *intervention,* against which Dr. Morgan pertinently protests. Indeed he approaches very closely to the idea of transcendence, and may even be said to virtually affirm it (although this is clearly not his intention) when he writes,

> . . . There is for me (I must repeat) one and only one realm of reality that *is both natural and spiritual,* in ultimate unity of substance, but *is not both natural and supernatural* if this imply ultimate diversity of orders of being.[7]

The transcendence against which Lloyd Morgan protests is not, it would appear, the transcendence which is the complement of immanence, but that idea of the transcendent (or supernatural) which alienates it from nature and from humanity, assigning to it such an ultimate dissidence from the natural order that it can not be truly immanent in it. Against this narrow and divisive conception of the supernatural, one may well join Dr. Morgan's protest, but there is a conception of transcendence which implies ultimate unity, or at any rate harmony, of being.

Approaching the *spiritual* element in experience from the viewpoint of nature—as all these cosmic philosophies do—it is quite natural to regard spirit only as an emergent of nature and not something in itself above nature, while immanent in it; but if we approach nature from the opposite pole of spirit, or personality—i.e. from the transcendent viewpoint, spirit (originally and directly experienced

[6] *Life, Mind and Spirit.* In his recent work, *Mind at the Crossways,* Dr. Morgan writes: ''The whole course of events subsumed under evolution is the expression of God's purpose'' (p. x)—which means ''all that has been and will be expressed in the consummated course of evolutionary progress.'' This, as Dr. F. C. S. Schiller points out, is circular reasoning and gets nowhere. Cf. *The Personalist,* October, 1930, p. 295.

[7] *Ibid.*

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as such by the human spirit) is discovered immanent in and permeating the cosmos. True immanence is thus seen to involve transcendence and *vice versa.* They are manifestations, complementary aspects of the same spiritual Reality that transcends and yet informs both nature and history.

III

The inherent defects of the prevalent *immanentism* (if I may so call it) in all of its forms are, as I see them, (1) that it is illogical and (2) that it is untrue to experience.

(1) Logically considered, the concept "*immanence*" is incomplete and impotent without its polar concept "transcendence." It has no true meaning, as has already been pointed out, apart from transcendence. Immanence-transcendence, that is, belongs to the class of polar relationship which may be termed *contrapletion,* in which one contraplete requires the other as its antithesis, in order to fulfill its meaning, as e.g., above-below, light-darkness, whole-part, subject-object, human-divine, finite-infinite, etc.[8]

The immanence-transcendence relationship, that is, being grounded in logic, to force the two apart is to violate one of the structural principles of reason.

(2) This mutuality is witnessed to in experience also—and doubtless for that reason emerges in logic. This can be best realized by an appeal to common personal experience, *viz.:* It is the nature of personality, as attested by experience, to create. Every person is creative, either richly or poorly, expressively or inexpressively. Every object one "makes," every word he speaks, every letter he writes, every act he performs, is a creative act. Something comes into existence that was not before. And in every such self-expression the agent becomes uniquely immanent. Yet, as a distinct self, he remains also transcendent, and thus able to incarnate himself in other forms of creative expression.

This universal human creation activity, involving transcendence of the thing created and immanence in it, seems to furnish the best possible clue to the origin and nature of the universe as a whole. In what other way may we conceive of the coming into being and development of the cosmos than by this appeal to our own creative experience and reason,—especially when the highest motive we ourselves know, i.e., love, is assigned to the total cosmic process.

To be sure the interpretation of the cosmos (including humanity) as due to the benevolent act of divine creative self-impartation leaves us with the baffling problem of *evil*—natural and moral—unsolved.

[8] This relationship, as it appears in Paradox, I have discussed more fully in an article entitled "A Neglected Factor in Logic" to be published in *The Philosophical Review.*

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But it also suggests relief from its darkest aspects in two directions, first, in the fact that the order in which we find ourselves is *developmental* (and seemingly *progressive*) and second, because within it is that singularly dangerous but priceless boon—*freedom*. It is significant of the limits of mechanism that the physical sciences are finding indications of freedom, in an incipient form, throughout nature—in the cell and even in the electron—as well as in higher forms throughout the animal world, thus throwing light on all the varied aberrancies as well as achievements in the field of nature which reach their surpassing toll in man.[9] In the presence of these two potencies, development and freedom,—both of which are essential to a worthful universe yet both involve aberration—the problem of an imperfect, and in many ways perverse, yet on the whole value-producing, cosmos is not wholly inexplicable. For the "emergence" of personality—confessedly the highest value in existence—requires both. The recognition of *value* in the emergent process at once posits transcendence as well as immanence. What does "higher" mean, in the value sense, unless there is a high, i.e. a transcendent? The personal can come ultimately only from person. If emergent, then antecedent; if immanent then transcendent. Otherwise personality is only an epiphenomenon, a by-product of nature, a strangely incongruous phantasm arising out of that which knows it not.

IV

The slightest glance backward over the history of philosophical thought concerning ultimate problems discloses the lack of balance between these two ideas, and also how repeated and earnest has been the endeavor to adjust them to one another. Now one gains ascendency, now the other. The Hebrew mind was prone to enthrone transcendence. The mind of India dwelt upon immanence, often losing it in pantheism, but at times showed a striking comprehension of immanence and transcendence, in unison, as in the following sentences from the Gita: "All created things are in Me, but not I in them, i.e. not confined within them." "There is a third entity known as the Supreme Person or *Paramatma*—the great soul who though beyond all qualities and all phenomena yet sustains the world" (Chapter XV).

The Greek mind, too, inclined toward immanence, but in the logos conception found a principle of reconciliation. Christianity, uniting Hebrew transcendence and Greek immanence, has wrought out the best conception of their mutuality, reaching its climax in the most daring of all interpretations in their realm—incarnation.

Close examination of the interpretative statements of those who

[9] *Cf.* Eddington, Arthur Thomson, J. Y. Simpson.

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represent a philosophy of immanentism, to the exclusion of transcendence, reveals a subtle, largely unconscious—otherwise it might be termed surreptitious—disposition to fulfill the deficiency of such a viewpoint by introducing a virtual transcendence in the guise of complete immanence. For example, Benedetto Croce, in his address upon "The Modern Conception of Religion" before the Sixth International Congress of Philosophy, after stating that "there is no doubt that philosophy is opposed to the transcendent and consequently mythological conception of religion" (What is the connection between transcendent and mythological?) goes on to add, "but since the effectual religiosity of man is, and has never been anything but, a confident effort towards purification and elevation, a striving, through sorrow and joy, towards truth and goodness, this modern and human philosophy admits within itself all the earnest and sincere religion which can be in the world."[10] Manifestly the truth and goodness *toward* which "religiosity" strives are transcendent, and in so far as they are achieved the immanent and the transcendent become unified.

Professor Ames, representing a contrasted type of philosophy which views religion "as a natural, cultural, sacred process,"[11] in his address before the same Congress, after describing religion as "the endeavor to realize the fullest possible life," continues: "It may be true that reason shines with a very limited and imperfect light in all this immensity of force and passion, but it is nevertheless a light within whose gleam man has discovered some of his dearest treasures, and by which he daily guides his way into further discoveries and achievements."[12] What is this light of reason, if not the eternal logos, and what are the treasures which it discovers if not those values which are immanent only as they are also transcendent?

V

Such concessions to the supra-immanent, which might be multiplied indefinitely, show how naturally and insistently immanence demands transcendence. *"Knowing"* itself is, in fact, "characterized by a potential reference to, an evocation and apprehension of, a Beyond."[13] It is practically as well as logically disruptive to truncate truth by cutting off immanence from its essential complement transcendence.

How subtly the transcendent everywhere involves the immanent,

[10] *Proceedings of the Sixth International Congress of Philosophy, Harvard University, Cambridge, Massachusetts*, 1926, p. 555.
[11] *Religion*, Macmillan, New York. (Preface.)
[12] *Op. Cit.*, p. 120.
[13] A. O. Lovejoy, *Contemporary American Philosophy*, Vol. II, p. 97.

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and *vice versa,* is felt when one has once become sensitive to the relationship. When Royce, for instance, isolates "the spirit of the community" from the community as an aggregate, he designates something that is *in* the community and in a sense belongs uniquely to it, but which is also, as *spirit,* above it, universal, and, as such, shared by every true community. In Christian symbolism this relationship is represented by the formula, the Holy Spirit who proceeds from the Father and the Son. Monism, to be truly such, can not be either a mere barren transcendentalism, nor an equally barren immanentism, but must first realize the *duality* which it endeavors to synthesize. Only a monism which recognizes the *duality* of nature and spirit and overcomes the *dualism* (in the sense of hostility) into which they have been thrown, can be a true monism.

When Professor Boodin, in his impressive cosmic philosophy, glows with lofty feeling at the thought of "the spirit of the whole,"[14] he is contemplating the transcendent-immanent *idea* of the whole (its spirit) rather than the whole itself. In distinguishing *the spirit of the whole* from the whole he isolates an immanent factor whose very capability of isolation proves it to be transcendent; for as a *uniting* spirit it does not belong to mere aggregation, but, as *wholeness,* is transcendent both as a concept and an experienced value. The use of the term "spirit," as already pointed out, involves transcendence; for spirit is *personal* in its very intention and implications and personality is transcendent as well as immanent. It is not without philosophic *Urgrund* that the Christian ascription of praise is to One "who was in the beginning, is now and ever shall be." Such a transcendent spirit alone can account for the immanence in which He is discovered in human experience.

It may even be pertinent to suggest that Professor Whitehead's "principle of concretion," inasmuch as it distinguishes the *principle* from the *process* of concretion, is itself an unconscious recognition of transcendence. Hard and fast realism is palpably one-sided. "Man does not stand outside of nature and ask her questions," says Professor Woodbridge, "he stands inside."[15] But if he stood wholly inside nature he would ask no questions, any more than the amoeba or the ape. It is because he is above nature, as well as within her, that he questions her.

If, then, it is both unphilosophical and spiritually and practically impoverishing to force these two mutual contrapletes, immanence and transcendence, apart—or to suppress one for the sake of the other—it is the part of philosophy to seek an interpretation comprehensive enough and sufficiently true to experience to realize the full meaning

[14] "The Universe as a Living Whole," *The Hibbert Journal,* July, 1930.
[15] *Contemporary American Philosophy,* II, p. 423.

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and value of this paradoxical but rational juxtaposition of contrapletes that call for recognition, adjustment, and synthesis.

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BOOK REVIEWS

The Philosophy of Art. C. J. DUCASSE. New York: Lincoln MacVeagh. The Dial Press. 1929. xiv + 314 pp.

Two years ago there appeared in this JOURNAL an article by Professor Ducasse entitled "What has Beauty to do with Art?" The attempt was made to show that they are essentially independent of each other. Since then in his book, *The Philosophy of Art,* Professor Ducasse has reiterated the same doctrine employing arguments similar to those of the earlier essay. Our purpose is to revive these issues with a view to casting doubt on a position which up to now seems to have been accepted in silence.

One's first reaction to the thesis that "such connection as there is (between art and beauty) remains wholly adventitious," is to wonder why this has not been recognized before by writers on æsthetics. Professor Ducasse is himself aware of this peculiar blindness among philosophers and others, and attributes it to the fact that "most of us find some degree of beauty in the vast majority of the works of art of which we think spontaneously," and because in the æsthetic attitude "the beautiful is so much easier to contemplate at any length than the ugly." Another reason for the common misapprehension is to be found in certain mistaken notions as to the nature of "the ugly in art." This will concern us later.

Most of us, I suppose, continue to foster a conviction that beauty and art are more intimately related than Professor Ducasse would have us believe. We feel in this connection as William James felt concerning the relation of consciousness to behavior: "It is quite inconceivable that it should have nothing to do with a business which it so faithfully attends."[1]

I propose, therefore, that we state and examine the positive reasons that Professor Ducasse gives for his separation of beauty from art. These form the section headings of the first chapter of *The Philosophy of Art* as follows: (1) Art is not an activity aiming at the creation of beauty; (2) Many works of art are ugly; (3) The artist aims not at beauty but at objective self-expression; (4) The deliberate creating of beauty is not art; (5) If a thing is a work of art; it remains so. But beauty comes and goes.

Since 3 includes 1, this list reduces to four specific reasons for

[1] *Principles of Psychology,* Vol. I, p. 136.

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separating beauty from the definition of art. Let us begin with the statement "The artist aims not at beauty but at objective self-expression." "This," says the author, "voices the most decisive of all the objections to describing art as the activity which aims at the creation of something beautiful. Such a description of the art-activity is simply and flagrantly untrue to psychological fact."[2]

There is no reason for disagreement here. It needs to be pointed out, however, that this involves us in no obligation to include the facts of the psychology of the individual artist as elements essential to the definition of a "work of art" in the æsthetic sense. Here, I merely observe that it is a further fact of psychology that the appreciative "consumer" seldom, if ever, has regard for the conscious purpose of the artist in judging a given production to be a "work of art."

An equally important objection against associating beauty with art is that "many works of art are ugly." By "ugliness," Professor Ducasse means "works in the contemplation of which, for whatever reason, we get not pleasure, but displeasure, . . . and from which we therefore turn with aversion." Obviously, the truth of this depends upon the author's definition of "a work of art," to which we have not yet been able to assent. Agreement may be universally accorded, however, to the more economic statement that many artists do as a matter of fact produce things which are not found to be beautiful.

The same consideration holds of the assertion that "If a thing is a work of art, it remains so. But beauty comes and goes." A given production is what it is, but whether or not it is "a work of art" may shift in proportion as beauty is ascribed to it.

The remaining point that "the deliberate creation of beauty is not art" is made to depend upon the supposed fact that many works of art are ugly. But even if art *were* to be subsummed under the class of "deliberate attempts to create beauty,"—and we have agreed it is not—it still would *not* follow that every attempt to create beauty is art. The converse simply does not hold, as a matter of elementary logic. One can define art in terms of beauty without defining created beauty in terms of art.

Our problem has now become somewhat simplified since the three chief objections to the internal relation of beauty to art have been seen to hinge on Professor Ducasse's definition of art itself, to which we now devote our attention.

Beginning with Webster, the author takes the generic description "skilled performance" as his logical starting point. So long as one adheres to this degree of generality, the objections to defining

[2] "*Philosophy of Art*," p. 18.

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art in terms of beauty are apparent to everyone. Who would have the slightest inclination to disagree? But of course we do not arrive at æsthetics until this class is greatly delimited. This, Professor Ducasse immediately proceeds to do, and sets forth his final result in diagrammatic form. As "skilled activity," art may be divided into three parts, (1) "skilled play" (Autotelic Art); (2) "skilled work" (Ectotelic art); and (3) "skilled self-objectification" (Endotelic art). Omitting the possible objection that these classes may well be regarded as not mutually exclusive (e.g., "self-objectification" would certainly appear to have an important place in both "skilled play" and "skilled work"), we find that "skilled self-objectification" becomes the next lowest class wherein we are to find the "æsthetic art" which is the true object of our search. This "æsthetic art" is the "skilled objectification of feeling" which is to be distinguished from two other species of the genus skilled "self-objectification," viz., (1) "skilled objectification of meaning" (Lectical art); and (2) "skilled objectification of will" (Heuretic art).

These are tortuous paths, and Porfessor Ducasse has an inveterate propensity for belaboring us with unusual, even if precise, terminology. But these are his methods, and we must follow before we can criticize.

So far, then, we have this on our hands: "Æsthetic art is skilled objectification of feeling." To this is added the further qualification that the objectification in question is "not merely objective self-expression but . . . conscious or critically controlled objectification of self."[3] We have not yet reached the end, for self-expression is objective only "when its product is such that, *in contemplation,* it reflects back accurately the feeling which was to be expressed."[4]

But to *whom* does it "reflect back"? To the artist or to the consumer? To *both,* if I understand Professor Ducasse's exposition, for in the chapter preceding the delineation of the æsthetic attitude he writes "What is meant here by speaking of objectification, or of expression as objective, is that the act of expression is creative of something (1) capable of being contemplated by the artist at least, and (2) such that *in contemplation* that thing yields back to him the feeling, meaning or volition of which it was the attempted expression."[5]

Let us concentrate on the second point since it really includes the first. The artist must be able to look at his work and say "Yes, that is exactly what I meant." Or rather, since it is æsthetic art

[3] P. 111.
[4] P. 134.
[5] P. 113.

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which concerns us, the artist would say, "This is exactly what I *felt.*" It is this process to which Professor Ducasse refers when he says that "art is not merely self-expression, nor even merely objective self expression, but *consciously* objective self-expression; its product must not only be capable of passing the test of objectivity described, but must have actually passed it. . . . *A critical judgment is an intrinsic, essential constituent of the productive activity called art;* and indeed, not merely a critical judgment but a favorable one." [6]

This constitutes the complete definition of the expression, "conscious or critically controlled objectification of self," which in turn forms the essential element in the definition of "æsthetic art."

The reader has probably foreseen our question: "How is one ever to know that the object of one's contemplation is a work of (æsthetic) art?" The only possible reply seems to be "When we have the personal assurance of the artist that in his contemplation the object 'yields back to him the feeling . . . of which it was the attempted expression.'"

This leaves us with the result that if the definition of art given by Professor Ducasse is the correct one, *there are comparatively few cases when we can know that a given production is a work of art.* The theory has for its consequence that the vast majority of works of art can *never be known to be such,* and that only those works of the past can be called art of which we possess biographical records in which the artist himself tells us that he has applied the test, and that the production is a true objectification of his feeling at the time he expressed it. Concerning contemporary art, we are not much better off, since only those who are in the immediate circle of artists have access to the information required to enable them to be sure that the created objects are "works of art."

It may be objected that the very *existence* of the created object indicates that it has passed the test, if we suppose that the artist destroyed that part of his work which did not seem to himself to succeed. Nevertheless, the criticism stands, since art is recognizable as such rather more surely to critics and others than to the artist, whose estimation of his own work seldom conforms to the judgment of either his contemporaries or posterity.

Professor Ducasse makes one statement which might be quoted as invalidating the inference we have made from his position. It is this: "It should be noted, however, that this obtaining back from the object created, of what we tried to express, is *only the proof* of the success of the attempt at objective expression. It is not an end, other than objective self-expression, to which the object is intended

[6] P. 115.

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as means and for the sake of which it is created."[7] The second sentence of the quotation explains the import of the first, but the first does *not* mean that the process of proof can be left out, for, the "product must not only be capable of passing the test of objectivity described, but must have actually passed it."[8] I see no way of avoiding the conclusion to which the argument leads us.

Must the work of art reflect back to *us*, the consumer, the feeling which the artist had to express? There is no direct answer to be found from anything Professor Ducasse says explicitly. It may be that the definition of art involves contemplation only in so far as the artist is concerned, whereas the description of the æsthetic attitude may be taken to include both artist and "consumer" alike. One is inclined to give the author the benefit of the doubt, for if the work of the artist must yield to the "consumer" the same feeling as it gave back to the artist before it can be called "a work of art," then our predicament is doubly hopeless; the barrier to knowledge becomes more insurmountable than ever! The point need not be urged, however, for it has already been made clear that such a definition of art as that of Professor Ducasse, if true, makes it practically impossible to know when anything answers its requirements.

We now return to the definition of art wherein self-expression is said to be objective only "when its product is such that, *in contemplation* it reflects back accurately the feeling which was to be expressed."[9] This gives rise to a careful description of the æsthetic attitude, since "the notion of æsthetic contemplation being thus involved in the conception of art formulated, it is necessary to inquire next more particularly what æsthetic contemplation is."[9]

It is not necessary to recapitulate the detail of Professor Ducasse's description of the æsthetic attitude, since in most respects it is the usual one appearing in most æsthetic literature. Two points, however, require mention. The first is the careful distinction made between "attending to" the content of the æsthetic attitude, and "listening for" the feeling import of that content. It is the "listening for" that is the unique and defining characteristic, since "the fact of rapt attention is not peculiar to the æsthetic attitude."[10] At first sight the nicety of this distinction induces one to accept it, but on second thought it appears that "listening for" is likewise not confined to æsthetic contemplation. One can, for instance, "attend to" a minister or a political speaker, and "listen for" the feeling import of his words as well as for their cognitive meaning, while yet remaining in the intellectual rather than in the æsthetic attitude.

[7] P. 113.
[8] P. 115.
[9] P. 134.
[10] P. 141.

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For example, a student of social psychology may attend a mass-meeting for the main purpose of detecting the emotional import of the speeches, and watching the reactions of the audience. In such a case, however, the "listening for" is strictly cognitive, being far removed from æsthetic contemplation.

The second point of note is the author's clearly stated position that beauty in no way enters into the description of æsthetic contemplation *as such.* He recognizes, however, that beauty *does, as a matter of actual experience,* play an important though extrinsic rôle in the attitude defined. It is consequently included as the chief of the positive inducements to prolong the contemplation. This "is one reason for the fact that, on the whole, beauty is expected in works of art by almost everyone in spite of its being, as we have seen, not in the least implied in art." [11]

At this stage, one feels that we are perilously close to the line of demarcation between art and beauty, and the barrier is dangerously near giving way when we read: . . . "It would be very nearly true to say that, for most people, beauty is the condition of the 'æsthetic visibility' of anything. For the ugly does not, like the beautiful, bribe and encourage contemplation, but immediately punishes and discourages it, and thus tends to become æsthetically quasi-nonexistent." [12] This curious wavering is exemplified again as follows: "As already stated, no contradiction is involved in speaking of something as being both a work of art and irredeemably ugly. But æsthetic contemplation of such a work of art, though possible, and indeed necessary to the apprehension of its ugliness, would under normal circumstances be abandoned at once." [13]

Now a little reflection leads one to suspect that this attempt to define a work of art without reference to beauty is self-defeating. *For just in proportion as the æsthetic contemplation is missing or "abandoned," due to an absence of beauty, so does the object in question fall short of coming under the definition of "æsthetic art," since "æsthetic contemplation is . . . involved in the conception of art formulated."* [14]

When applied to the artist's contemplation of his own work, this criticism becomes even more trenchant. For, during creative activity, the artist *is* dwelling on the object, so that at least for him it is satisfactory to contemplate as what *is to be* expressed, and, of course, if it does *not* express this, then it is a failure in his own eyes. It is hardly conceivable that the artist should regard "favorably" a creation of his which immediately repels him and forces him to

[11] P. 145.
[12] P. 146.
[13] P. 192.
[14] P. 134.

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abandon the very attitude which is the precondition of the critical judgment that he must make before the self-expression can be called "objectified."

These considerations are, I believe, sufficient to show that Professor Ducasse has failed to make convincing the position that beauty is extrinsic to the definition of æsthetic art. It may be objected that our analysis has failed to demonstrate the impossibility of defining art independently of beauty. I grant this is so, but maintain that the preceding arguments have shown that even if one *could* accept Professor Ducasse's definition of æsthetic art, it becomes a highly doubtful matter whether beauty can be excluded from the description of the experience that serves as part of that definition. And, furthermore, since we have rejected the definition itself because of the strange paradox to which it leads, it follows that we must deny its implication, viz., that the connection between art and beauty is "wholly adventitious." More concretely: the chief objection to including beauty in the definition of art is that "Many works of art are ugly." But this is true *only if we accept Professor Ducasse's definitions of art and ugliness!* We have rejected the former in so far as it is "æsthetic art" that he means when he makes the statement. On the other hand, if "art" is here used to mean simply "skilled activity," then it is obvious that many works of art *are* ugly. But this, I suggest, has no significance whatever for æsthetic theory. If, however, it is maintained that a great deal of *æsthetic* art is ugly, then the objections urged against divorcing beauty from art are pertinent in the obverse. For if æsthetic art implies beauty, it follows that where we have the negation of beauty, i.e., ugliness, we are not dealing with a work of art. It is indeed true that art galleries contain many works which we may regard as "ugly," and from which we turn with aversion, but it is exceedingly doubtful whether these would ever have been exhibited if *at no time* the æsthetic contemplation of them had been attended with positive enjoyment. Were this not so, it is difficult to understand why a museum should refuse any creation as long as it should be accompanied with the artist's sworn statement that this represents truly the feeling he had when he expressed it!

LAWRENCE W. BEALS.

WILLIAMS COLLEGE.

Logic and Nature. MARIE COLLINS SWABEY. New York: The New York University Press. Pp. xiv + 384.

"The main purpose of this book is to show that logical considerations form the basis of metaphysics, but, in reflecting upon these ideas, I was drawn on to an attempt to develop a critique of naturalism and an argument in defense of rationalism." This sentence

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from the preface describes the book faithfully. The chapters are really a series of essays dealing with a wide range of subjects and containing many digressions, but always illustrate the central theme. The arrangement and style of the book are admirably lucid; Mrs. Swabey threads her way through the press of predicaments and paradoxes with the ease and good taste of a duchess at a levée; never elusive or faltering, she goes to the heart of each question and faces its difficulties honestly.

"Broadly speaking, the tenets of naturalism as apparent in present philosophy may be summarized somewhat as follows: First, all knowledge is derived from experience by methods ultimately empirical. . . . Second, the favorable maintenance of existence and the stability of systems appears to be a fundamental tendency of natural phenomena. Third, the basic order of nature is temporal and causal; and there is no separate order discoverable of logical dependence. Fourth, intellect or reasoning is only a *proper part* of nature, and, as such, is always less than and included within the *whole* of it. Our contention, on the contrary, is that naturalism, wherever it adheres strictly to the implications of these propositions, involves itself in a self-refuting position whereby knowledge itself becomes impossible. The only plausible escape from this predicament, as we see it, is through acceptance of the transcendent competence of reasoning and the recognition of its capacity as an infinite part to encompass the whole, by which means alone the paradox of intellect (its inclusion within the object revealed by it) seems resolvable" (pp. 50–51).

Concerning the ontological status of this transcendental power Mrs. Swabey speaks only tentatively. She appears to conceive it as a kind of *Nous*, distinct from nature and from individual minds, yet somehow guiding both and *prior* to both. Inference, for example, is prior to judgment. "Whereas the discrete judgment or proposition depends for sanction of its bare unsupported statement upon an alleged correspondence between its meaning and the nature of external facts, the truth or falsity of the inference *qua* inference, on the other hand, depends ultimately upon whether its parts fit together in a way that is rationally inevitable" (pp. 117–118). Facts are always infected with the uncertainties inherent in all sense-experience. Relations belong to the logical substratum. "All relations are, furthermore, inferential; that is, they are logical operations not substantive couplings; and knowledge of them requires thinking them through, and not merely their acceptance or rejection as a factual presentation by the mind" (p. 219). What is important in our concept of nature are not the chaotic particulars, the secondary qualities, but the mathematical law which orders them. "Life itself and other important emergents may perhaps plausibly be regarded

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as the result of extraordinary dispositions of chance'' (p. 240). ''It seems advisable to abandon the perceptual view of existence, and to assume instead that nature is to be finally tested by logical rather than by perceptual criteria; and though we may still admit that reference to an observer is implied in every scientific law or phenomenon, we may henceforth conceive this percipient as a purely logical subject or necessary condition of knowledge'' (p. 258).

Truth is validity within a logical system. ''From the beginning we have sought to combat the fallacy of mistaking for truth what we believe mainly because we are impotent to believe otherwise. Natural limitations are not veridical compulsions. Truth, on the contrary, is distinguished from other objects of belief by having in its nature that which convinces the whole rational man, and which does not merely crowd itself upon him by main force'' (p. 336).

Nature is intelligible through and through, and the means whereby we can grasp it as a unity is the universal. ''Granting that in infinite collections the part may encompass the whole without contradiction, this principle would seem to apply equally well to universals, permitting them without imputation of inconsistency to be understood to stand for a type . . . and for the individual falling within it'' (p. 372). ''Were it not indeed, for this element of universality in reflection, enabling us to go beyond the actual cases examined, synthetic judgments, hypotheses, predictions, and intellectually controlled advance could hardly be justified. By the same means, we may assume, the universe (though empirically inexhaustible) may none the less be grasped as a logical unity. For, if thought is able to reveal the universal in the case of lesser kinds, it can not be difficult to understand; indeed, we are led by a continuous process to assume, that the universe itself, as the kind of all kinds, can be apprehended in the same manner'' (p. 377).

The weaknesses of Mrs. Swabey's argument are such as beset any kind of rationalism. Whether you call it ''necessary conditions of thought'' or ''the laws of thought'' or *Nous,* the relational framework of thought acts as though it were an integral part of external reality, and it is easier to believe this true than to explain how individual minds participate in the cogitations of *Nous.* To say that ''the universe may be grasped as a logical unity'' is like believing that every time you leave your house you are on your way to Rome, since all roads lead there. Even if the rationalists were right, what practical difference would it make? The truths I want are all particular truths, shot through and through with coarse experiential elements, and these *Nous* does not deign to guarantee for us. The paradox of ''transcendence,'' which runs through the book like a Wagnerian *leitmotif* and constitutes the most original contribution

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Mrs. Swabey has to make to the argument in defence of rationalism rests on the assumption that classes are real and that universals are classes. I can not refute her application of it to the problem of knowledge because it means nothing to me. I agree with Mrs. Swabey that the picture naturalism draws of experience is a bad likeness, but surely one may regard knowledge as a relation between one part of the world and another without being a naturalist. It is not *my* mind that knows the universe, it is *Nous*. The analogy seems to me unsound throughout. Infinites do not apprehend or even encompass the wholes of which they form a part. Individual minds are not infinite and therefore can not correspond to infinite collections, and the same may be said of universals and the classes which they define. I suspect that the phrase "comprehend the universe" is used in a double sense. Denial that we can comprehend it as a logical unity does not imply that we can not comprehend it in the sense of understanding those parts of it which we are concerned with. Mrs. Swabey might reply: "But if the evidence for our highest knowledge comes to no more than this, if in the last analysis we find ourselves tethered to experience by conditions that can not bear rational scrutiny, then, surely, certitude and absolute knowledge must be relinquished as goals of our thinking" (p. 151). But this is merely an *argumentum ad verecundiam*.

Although temperamentally debarred from understanding the book, I enjoyed its boldness and its clarity and recommend it to any one who has a taste for metaphysical adventures.

FREDERICK ANDERSON.

STANFORD UNIVERSITY.

The Organization of Knowledge and the System of the Sciences. HENRY EVELYN BLISS. New York: Henry Holt & Company. 1929. Pp. xx + 433. $5.

The author has chosen a most interesting field and has covered it encyclopedically. He treats of the organization of knowledge with reference to social organization, the system of the sciences, and library or reference materials. His major attention is given to the second of these themes, with excursions into the field of functional and symbolic logic. The author is a realist in his philosophy, or at least he espouses the realist viewpoint; and he is of the Columbia species. In fact, with all his breadth of interest in subject-matter within the general limits of his theme, he pays surprisingly little attention to modern writers and investigators who are not of Columbia origin. Again and again he makes no citations to literature from the pagan districts, although frequently there is much that bears directly upon his subject.

Yet this does not mean that he has not covered a very broad scope

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of interests in many respects very well. He has little difficulty in showing that rapid changes in data, interpretations, and standards call insistently for a reorganization and a better organization of knowledge as a means to construction and reconstruction. He also rightly indicates that the present-day emphasis in the organization of knowledge is increasingly upon social data. He might well have made more of this point, for the sociologists are perhaps the most active of all scientists of our time (and have been perhaps since the eighteenth century) in working on this problem. He mentions the ideas of Cooley and Ross in this connection. He might have cited many others. Even philosophy (as in the case of Dewey) is turning increasingly toward a social science interpretation and away from the old theological and metaphysical interpretations as embodied in such fields as natural theology and moral philosophy, so much cultivated in the nineteenth century.

Parts two and three are given over mainly to the classification of the sciences, culminating in rather elaborate parallel schematic arrangements (pp. 232–235) of categories of data dealing with the natural order, the developmental order of knowledge, the pedagogical order, and systematic relationships. The criticism of earlier classifications is generally incisive and, in the reviewer's opinion, pretty adequate and just. The tabular classifications offered should be of considerable value to student and general reader alike, because of the schematic visibility and objective comparison they give to the various branches of science. It is interesting to note that he classifies ethnology, ethnography, human geography, social and political history, religion, ethics, and theology (!) applied social science, political science, jurisprudence and law, and economics under the general rubric of sociology. Under anthropology he places physical anthropology and the medical sciences. Of course, this sort of an arrangement will be satisfactory to few of the subjects named and some of them will regard the author as old-fashioned and as a "positivist," which naturally is very bad. But the reviewer has seen many other classifications which he thought were worse. He does shock me somewhat, however, when he speaks repeatedly of a natural order, or in such a way as to imply one (pp. 170ff., 219ff., 238ff., etc.). Although he recognizes clearly that classification is purely a relative process, depending for its content and form upon the viewpoint of the classifier, he does not appear to take adequately the next step of recognizing that the "natural order" is but a complement of our classifications, a system of categories and of relationships resulting from our perspectives or the way we look content and order into the world of material and non-material objects.

Part four is a historical survey of systems of knowledge, begin-

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ning with Plato and Aristotle and coming rapidly through the middle ages to the encyclopedists and Comte. He is much better satisfied with Comte's than with Spencer's classification, especially the latter's "Abstract—Concrete Blunder." He holds that Wundt's later system is better than his better known earlier one. Ostwald and the American Association for the Advancement of Science have approached most nearly to perfection in solving this persistent problem of the classification of the sciences. The author's treatise has one very decided advantage in this practical age: he means to make his discussion correspond to the needs of investigation and of the storage of material.

L. L. BERNARD.

WASHINGTON UNIVERSITY.

Plutarch's Moralia, Vols. I and II, with an English translation by FRANK COLE BABBITT. (Loeb Classical Library.) London: William Heinemann; New York: G. P. Putnam's Sons. 1927. 1928. xxxv + 468 pp.; xiv + 508 pp.

The justification for the publication of such essays as these must lie in the fact that the public prefers to read different authors even when they repeat one another, rather than to reread some one author. For Plutarch has little to offer that is new—although, of course, Plutarch is that unique individual known as "Plutarch."

This is not intended to cast undue aspersion upon Plutarch. His views are sound enough despite their wide range. Thus, in proferring advice upon the education of children, he is alert to the impressionability of early years, is adverse to corporeal punishment, urges the importance of competent (and well-salaried) teachers, and even is careful to dwell upon eugenics to the end that there shall be no biological handicaps to learning.

He inveighs vigorously against superstition which leads to fatalism. Atheism is bad enough, but the atheist at least assumes that his actions make a difference. Responsibility for the world's welfare rests squarely upon men's shoulders. Nor may this be denied, as some would have it, by any doctrine of chance. Chance simply is unable to explain the world of human events. In that world intelligence and purpose are clearly operative.

Acute in arguing the above, Plutarch is modern in his characterization of the ideal wife. Wives, says our philosopher, should avoid sensuality and should improve their intellect. It is for their husbands to encourage them in this direction. Marriage is more than animal-mating.

"Every man his own physician at forty or a fool," is given qualified endorsement. Let one watch and be careful of his health. Avoid excess, either in food or exercise. The cold-bath fad is over-

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done. Let not the intellectual think he can gorge himself and still have a clear brain. Watch out for premonitory symptoms. Drink wine in good measure. It is the most beneficial of drinks.

But surely such sayings are part of the funded sense of the present age.

In such a manner might Plutarch be reviewed were he a contemporary writer. But he wrote eighteen hundred years ago. And yet why express surprise at his modernity, since it is typical of the ancients? Not, of course, that they do not reveal their antiquity. Plutarch, for example, has views on eugenics that are as old-fashioned as his interest in the subject is new-fashioned. His preachments on the virtues of olive oil bespeak an older civilization. His explanation of the Oedipus-complex would arouse the scorn of Freudians. And it may be guessed that certain quaint essays belong to an older era: e.g., "How to Tell a Flatterer," "How to Profit by One's Enemies," and, perhaps, "Progress in Virtue."

Revealing as they do the spirit and customs of their times, the essays give us history in all its thickness. They are vivid percepts to enliven our pallid concepts derived from formal histories. In the translation of Mr. Babbitt they are delightful reading. The two volumes so far published give a pleasant foretaste of the twelve to follow.

L. M. Pape.

Chicago, Ill.

JOURNALS AND NEW BOOKS

Erkenntnis. Band I. Heft 6. Der Übergang von der aristotelischen zur galileischen Denkweise in Biologie und Psychologie: *Kurt Lewin.* Das biologische Individuum: *Julius Schaxel.*

Personalist. Vol. XII, No. 2. Imagination and Reason: *H. W. Carr.* The Relativity of Moral Obligation: *R. T. Flewelling.* The Possibility of Ethics: *G. P. Adams.* The German Revolt against Modernism: *A. R. King.* Plato's "Forms" and Plato's "God": *R. F. A. Hoernlé.* Bowne's Personalism under Criticism: *J. W. Buckham.*

Rivista di Filosofia. Anno XXII, No. 1. Teorie e pratica della vita nazionale: *W. Lutoslawski.* Il fondamento della religione secondo Rudolf Otto: *P. Martinetti.* L'Eraclitismo di Enesidemo: *G. C. Braga.*

Bastide, Roger: Les Problèmes de la Vie Mystique. (Section de Philosophie, No. 136.) Paris: Armand Colin. 1931. 216 pp. 10.50 fr.

Feldkeller, Paul: Sinn Echtheit Liebe nach Paul Hofmanns Sinn-Analyse und deren bedeutung für die Weltanschauungskrise

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der Gegenwart. Berlin und Leipzig: Kurt Metzner. 1931. 130 pp. 5 M.

Fourrier, Maurice: A Ceux qui Cherchent une Expérience religieuse. Préface de Henri Delacroix. Paris: Félix Alcan. 1931. 226 pp. 18 fr.

Goyau, Georges: Le Catholicisme. (Les Religions). Paris: Félix Alcan. 1931. viii + 301 pp. 15 fr.

Joël, Karl: Wandlungen der Weltanschauung. Eine Philosophiegeschichte als Geschichtsphilosophie. Lieferung 10 (Band II, Bogen 36–40). Tübingen: J. C. B. Mohr. 1931.

Le Senne, René: Le Devoir. (Bibliothèque de Philosophie Contemporaine.) Paris: Félix Alcan. 1930. 604 pp. 70 fr.

Le Senne, René: Le Mensonge et le Caractère. (Bibliothèque de Philosophie Contemporaine.) Paris: Félix Alcan. 1930. 348 pp. 45 fr.

Liebert, Arthur: Die "Bestimmung" des Philosophischen Unterrichts. (Pan-Bücherei. Philosophie, No. 5.) Berlin und Leipzig: Kurt Metzer. 1930. 32 pp. 3.80 M.

Muirhead, John H.: The Platonic Tradition in Anglo-Saxon Philosophy. Studies in the History of Idealism in England and America. (Library of Philosophy.) New York: Macmillan Co. 1931. 446 pp. $5.00.

Northrop, F. S. C.: Science and First Principles. New York: Macmillan Co. 1931. xiv + 299 pp. $3.00.

Nuzubidse, Schalwa: Philosophie und Weisheit. Spezielle einleitung in die Aletheiologie. Berlin: Ost-Europa-Verlags. 1931. 218 pp. 8.50 M.

Roeder, Ralph. Savonarola. A Study in Conscience. New York: Brentano's. 1930. 307 pp. $5.00.

Sternberg, Kurt: Neukantische Aufgaben. (Pan-Bücherie. Philosophie No. 6.) Zweite Auflage. Berlin und Leipzig: Kurt Metzner. 1930. 84 pp. 3.50 M.

Weill, Julien: Le Judaïsme. (Les Religions.) Paris: Félix Alcan. 1931. 241 pp. 15 fr.

Wheat, Harry Grove: The Psychology of the Elementary School. Newark: Silver, Burdette & Co. 1931. vii + 440 pp. $2.00.

NOTES AND NEWS

According to the announcement of the award of fellowships by the John Simon Guggenheim Memorial Foundation, Professor Helen H. Parkhurst, of Barnard College, has been awarded a fellowship for the next academic year. Miss Parkhurst will spend the time abroad on study in preparation of a book on the aesthetics of architecture.

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Mr. Lovejoy's Counter-Revolution. II. ARTHUR E. MURPHY.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 4. February 12, 1931.

Report of the Thirtieth Annual Meeting of the Eastern Division of the American Philosophical Association. ERNEST NAGEL.

Community as the Key to Evolution. H. W. WRIGHT.

Book Reviews. Journals and New Books. Notes and News.

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Mind in "Process and Reality": CHARLES W. MORRIS.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 6. March 12, 1931.

Report of the California Meeting of the American Philosophical Association. ARTHUR E. MURPHY.

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The Journal of Philosophy

THE PLACE OF REPRESSION IN MORALITY

THERE are certain things such as hoop-skirts, formal logic, Methodist revivals, and traditional standards of morality that are not in fashion. It is the last one of these that we are interested in. From the conception of morality as conformity to a set of external standards or obedience to established customs and traditions, we have advanced to the conception of morality as a principle of harmony and integration of all interests, valuable in itself because it is the expression of the deepest, most comprehensive nature of the individual. The field of ethics is no longer mapped off as a neat little section of the entire realm of human interests. Moral goodness is not a unique unanalyzable quality inherent in a certain class of objects. The field of ethics is the all-inclusive field of human activity, and moral goodness for the majority of writers on ethics is that organization of all interests which permits to each its most complete fulfillment. Duty as rather blind conformity to the arbitrary laws of society or to the dictates of the individual conscience has been relegated to the musty oblivion of the attic. The more popular substitute for this outworn overworked notion is intelligence or critical self-consciousness. I use the adjective "popular" not because it is coördinate with, or has been accepted as unreservedly or with such enthusiasm as Ford cars, the radio, and other accompaniments of the American bandwagon. It is applied here because there seems to be going on a less conspicuous but equally important revolution in the conception of morality as well as in the particular mores and habits of the more advertised younger generation.

The present leaders in ethical thought are in the process of reacting against traditional insistence on external authority or a sacrosanct consciousness of moral obligation. The center of moral gravity is shifting from Society (spelt with a capital S) to the Individual (spelt also with a capital I). It is obvious that the theory and technique of this change is not identical in all writers. For instance Everett in his *Moral Values* stresses the necessity of developing a reflective morality whose function is to construct an ideal that is desirable for the whole of life, to make us aware of the specific contradictions between different desires, and to solve this contradiction by bringing the desires into more complete harmony with the

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whole, thus revealing their true nature. In his own words "morality is concerned with the discovery and development of the richest possible content of value that can be realized in life."[1] For Everett this is, however, an essentially critical morality since along with this discovery and development goes the evaluation of all forms of spiritual activity, the settling of conflicting claims within the self, and the creation of a unity in which there will be a place for every desire and every desire will be in its place. To sacrifice or to reject any of the weaker desires is not permitted theoretically, for this would result in an impoverished morality from which the individual will revolt. To be sure, every interest must be legitimate, but the exact limits of legitimacy are left to individual discretion. By this general method morality is extracted from the realms of a peculiar obligation and transferred to the "spontaneous uncompelled choice of the good."

The chief prerequisite or golden key to this eminently desirable state of affairs seems to be an unlimited supply of intelligence. Perry recognizes this when he says in *Moral Economy* that "to be moral is simply to be intelligent, to be rightminded and openminded in the unavoidable business of living."[2] Morality is no longer intrinsic to the code of Hammurabi, to the Ten Commandments, or to the statutes of Massachusetts; it is, according to Perry, "that procedure in which several interests whether they involve one or more physical organisms are so adjusted as to function as one interest, more massive and more coherent, united in the common task of fulfillment."[3] He distinguishes between the fulfillment of a single isolated interest which is good but not morally good and the complex organization of a multiplicity of diverse interests where discord is eliminated in favor of harmony which is morally good. One difficulty of this conception is that to judge always in reference to the totality of all interests involved, directly or indirectly, is not so simple as to judge in a narrower sphere with reference to some hard and fast rule laid down by family or state. In the latter case a decision may be made without overworking the cerebrum, whereas the former case requires perspective, discrimination, and definite intellectual effort.

Characteristic of this school which treats of morality as an art rather than a science are the concepts developed by Fite in his *Moral Philosophy*. For him morality is the self-conscious living of life.[4] To be moral is simply to know what you are doing, to be thoughtful, intelligent, and wide awake to the whys and the where-

[1] Everett, *Moral Values*, 1918, p. 395.
[2] Perry, R. B., *Moral Economy*, p. 2.
[3] *Op. cit.*, pp. 14, 15.
[4] Fite, *Moral Philosophy*, 1925, p. 3.

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fores, the motives of your own conduct. Morality is, then, the expression in action, mediated by reflective thinking, of an individual's desires. It is constrained to no one aspect of life, but is indicative of the value and meaning of all sides of life. Granting these presuppositions of Fite it becomes exceedingly difficult to systematize various sorts of conduct, to subsume them under a few general rules, and to assert that to be moral is to live in accordance with these rules while to deviate from the straight and narrow path is to be condemned to eternal damnation. Morality is problematic rather than positive. It can not be tagged precisely and set in one pigeon hole because in some sense it is everywhere. Even our customary pragmatic divisions into morality, intelligence, and beauty are abstractions from the concrete whole which is the life of the spirit. The moral self abdicates from the combined rôle of policeman and anti-Epicurean and loses its close association with stern rigorous discipline. It proceeds to enjoy life, not with abandon and indulgence, but with intelligence and finesse and a reflective attitude that is a little withdrawn from the turmoil and strife of conflicts and that savors of the Aristotelian, Spinozistic "sub specie æternitatis."

Paton is another modern writer who identifies moral goodness with a coherent will, but he goes on to insist that this will is a member of an all-inclusive society of coherent wills. In his development of the subject in *The Good Will* he seems to me to preserve the positive contributions of the doctrine of self-expression, to make explicit the contradictions in it when carried to its logical conclusion, and to avoid this dilemma by reinterpreting the nature of the self. If self-expression is taken literally to mean the complete unrestricted satisfaction of every desire or impulse, however momentary, then the result, in as far as there could be a result, would inevitably be a chaotic life. Conflicts arise within the self and between the self and its environment, but no conflict can be settled just at the level of opposition. Either the interests must be so transformed that they can be synthesized above that of their opposition, or they must be dissociated so that the one is repressed while the other is satisfied. Expressionism which leaves out every form of dissociation is a one-sided abstraction. Illustrative of this type is that notion of a "unique underivative ethical energy, synonymous with the highest freedom, which expands and transforms the self" according to Felix Adler.[5] But unless this metamorphosis of the self takes account of the claims of other selves, unless this freedom is constituted by some sort of order and regulation, the so-called ethical energy is no more than individual licence or irrational caprice which by no stretch of the imagination can be termed moral. If, on the other hand, self-expression is interpreted as the realization of the

[5] Adler, F., *An Ethical Philosophy of Life*, p. 93.

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desires of any individual through a policy which is coherent in a society of all reasonable beings, then this seems to me to be an adequate conception of morality.

Paton is justified in asserting that morality is not something that is inoculated into us at a definite stage of existence because in some sense it is present throughout the whole of life. In as far as we give up living from moment to moment by introducing some sort of a working system into our lives, we are moral. Life on even its lowest levels demands continuity; the progress and development of morality consist in the gradual substitution of a coherent policy of life wherein the good of the whole is willed in place of mere continuity.[6] Given Paton's interpretation of morality there can be no simple dichotomy between good and bad. There are rather degrees of moral goodness which are also degrees of coherence. Evil appears when we reject the wider more comprehensive will in favor of the will of the narrower self, when we deliberately reduce the degree of coherence when we might have increased it. Nor is evil any more than good a quality of things in themselves since what is good for a relatively isolated being may be bad for the group welfare of a society of individuals. Paton makes a valid distinction between economic goodness which is correlated with "the coherence of a life within its own limitations—wherein we find out what we want and then see that we get it" and moral goodness which arises in the adequate adjustment of an individual will to a society of coherent wills.[7] This must not be interpreted to mean that the moral self is opposed to the impulsive self but rather that it must realize to the fullest extent this impulsive self. These blind desires sprouting out of the unconscious are the building materials of morality and it is the function of the moral or reasonable self to recognize these desires and to plan a course of action which will not ignore them, but which will satisfy them as fully as possible, doing justice to all. Paton expresses this point of view when he states that this is not done by "the victory of reason over passion but by the development of that reason which is already present in passion and by the purification of that passion which can never be separated from reason."[8]

In this conception of morality knowledge plays a definite and important rôle. Knowing and willing, instead of being two substantial entites, appear to be two differentiations of the concrete whole of spiritual activity. They are distinguishable, but they can not exist apart from each other.[9] The precise relation of knowledge to morality has seldom been clearly stated. It would, however,

[6] Paton, H. J., *The Good Will*, Ch. VII.
[7] *Op. cit.*, p. 211 ff.
[8] *Op. cit.*, p. 276.
[9] *Op. cit.*, Ch. V.

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follow from this that the function of knowledge is to make us acquainted with the real world of which we are a part. It brings to light the facts of the situation by indicating what is actual and what is possible in the future but not what is morally good. It presents to us the background, but is not in itself a judgment of value. Yet to will consistently and effectively is possible only with the assistance of a fairly comprehensive knowledge and in no case can the good will alone be a substitute for expert knowledge. To provide systematically for all desires and to adjust adequately our lives to the lives of others is to utilize those supplementary functions of knowing and willing.

This does not mean that to be moral we must devise a very complex plan that will apply to any and to all situations that may arise, a plan that will be completely harmonious with the wills of as many people as it is possible to know. Coherence, and so morality, lies not necessarily in the complete realization of such a plan, but is just as truly in the striving toward a whole which can not be satisfied short of the unification of all life. Nor does this imply that the individual must be more interested in the welfare of the whole than in himself. The truly moral self recognizes that the interest of the whole is equally the interest of the individual and that only through this wider coöperation can the desires of any self be adequately satisfied. The goodness of the whole is the goodness of the individual, but is not exclusively that of the individual. It is this inclusive character of morality that rescues it from subjectivism. Although there are possibilities of opposition between the will of the individual and that of society, the *raison d'être* of the latter is that in and through it individuals are able to get what they want; consequently always to oppose society would be to defeat their own ends. In as far as we have not yet reached the millennium there does not exist a perfect coöperation between individuals and society, but it is true that no action is morally good unless it is willed as an element in this wider coöperative life, even though only in an ideal society would the wills of all men constitute a perfectly organized whole. It is also true that no amount of coherence makes it possible for us to will in any one moment the whole of which that will is a part; what we can do is to will each moment as a part of the whole. It is only in this sense that we are justified in asserting the reality of the concrete universal, that the whole is in each of its parts.

In the case for morality as presented by these writers there are certain well-defined likenesses. They share an aversion to universal, fundamental, external principles by which human nature, *en masse*, should be guided. For external authority, whether individual or

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institutional, they substitute an enlightened mind whose right thinking is applied to all the difficulties of this life. Its dictates are freely chosen and freely followed. This places the responsibility on the individual soul, rescuing it from an unexamined life run on impulse and the lazy acceptance of the opinions of others, and forcing into action all critical evaluating power. The moral standpoint is simply that of self-knowledge in the light of which we can understand and guide our acts.

There are some implications in this current conception of morality that need to be made explicit. The first danger of misinterpretation lies in the fact that morality, though not restricted to any particular field of human activity, does not belong to the whole of life indiscriminately. Morality is concerned with willing, and though the objects of will can be anything within this universe, including all classes, morality has its meaning only in a coherent will which is directed toward these objects. The moral situation is constituted by a volitional conflict, and whereas it requires intelligence and knowledge to solve this conflict, there are other situations equally demanding intelligence and knowledge that are not moral. The second danger is the tendency of this theory toward a subjective morality. To be moral means to some writers to harmonize my own interests but not necessarily to bring my will into harmony with that of my fellow men. The human individual, however, is not a self-sufficient creature, a law unto himself. He is essentially a social being who lives by coöperating with other human beings because by such coöperation he can satisfy his own needs and interests more adequately. Therefore morality arises in a world which is wider than myself and which contains other selves distinct from me. My will to be consistent and effective must take into account the wills of other selves to which it is continually opposed but with which it continually attempts to create unity out of opposition. The third danger is that this harmony may become static and inert. The emphasis of integration, which is partially an overcompensation for its neglect by older orthodox morality, tends to ignore the dynamic element in this unity and the rôle played by conflict and opposition. Let there be unity, quite as much of it as it is possible for finite intelligence to achieve, but heaven preserve us from lapsing into inertia as soon as we have worked out a semblance of internal consistency. No two conflicts are precisely alike and the solution for one can not be applied in toto to the next, although it can be incorporated into the new solution. New experiences demand new integrations and the old equilibrium continues to be upset in favor of the new.

It is true that willing is always to some extent a conflict. And conflicts, whether they take place within the individual or between

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the individual and society are rather indiscriminate as to subject-matter. They may spring up upon the slightest provocation, but only volitional conflicts are within the scope of morality. When we want to take the next step in two directions we have all the necessary elements constituting a moral situation. Conflict is always between incompatible desires which can not all be realized simultaneously. To make an intelligent satisfactory decision, to arbitrate between the values of two or more opposing interests, all apparently equally strong, is not a simple task. But then, no one ever said it was and Spinoza said "all things excellent are as difficult as they are rare."

There are, it seems to me, two ways of facing this issue. We can dispose of the conflict with varying degrees of success by dissociation or we can look it squarely in the face, explicitly acknowledge the contradictory desires, and resolve the antimony by integration. There are cases of dissociation where no repression is involved, as when a man reserves his religion for Sundays only, doing what he pleases regardlessly the rest of the week, and correspondingly there are cases of integration which may take place on approximately the same level as the conflict without altering the nature of either desire and therefore without sublimation. In most cases of volitional conflict, repression is the most common form of dissociation and sublimation that of integration. The term "repression," though used by psychologists in different senses, will in this paper refer to White's definition, that is, "the processes by which certain states of mind are actively kept out of consciousness by the utilization of considerable energy."[10] Freud has characterized our actions as governed either by the pleasure principle or by the reality principle, with conflict arising between the two. When we encounter something that is unpleasant or causes anxiety, we tend to push it out of consciousness by the defense mechanisms of emotional repression. Unfortunately for our peace of mind the unwanted ideas or emotions do not die a natural death, but continue to absorb and generate energy at the subliminal level, and the conflict continues merrily on without the conscious self being explicitly aware of what is going on. The unconscious for the psychoanalysts is not a substantial entity in which repressed states reside, but is itself just that loose collection of repressed thoughts, desires, and emotions so that the beginnings of repression coincide with the beginnings of the unconscious.

It is customary among some psychologists and moralists to frown upon repression disapprovingly because of the active part it plays in the formation of neuroses and psychoses. It is quite true that in many cases excessive repression results in neurotic disturbances, especially when we refuse to recognize through fear that which is being

[10] White, *Mechanisms of Character Formation*, pp. 42–43.

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repressed, and the conflict going on below the threshold of clear consciousness absorbs the energy that might be directed outward to socially acceptable ends. Conflicts that take place without repression are harmless, but it is not conversely true that all conflicts involving repression are dangerous; there are varying degrees of repression and varying degrees of awareness on the part of the self. MacDougal says that "in the majority of conflicts resulting in repression, the subject is at some time aware, however obscurely, of the tendencies, the impulses or desires that are undergoing repression; but that repression is not always self-conscious volition."[11]

We are apt to assign to conflicts a purely negative value, to disparage them for the pain they always bring, and the loss of energy that is their inevitable concomitant. There is another point of view which is stressed by White in his *Mechanisms of Character Formation*. In contrast to the unexalted status to which conflict is relegated generally, he elevates it to the status of being the mainspring of life, arguing that "without it we could never have risen further in our nervous organization than a series of reflex arcs, if we could have lived at all."[12] From the psychoanalytic point of view the libido is merely a name for that stream of creative enery flowing through every individual, a force striving continually to push itself upward and forward, to break through limitations and barriers, and to create new adjustments to life and new contacts with reality. If it succeeds this energy is itself transformed, it is refined and spiritualized so that out of the conflicts come finer more delicate adjustments to life. If, on the other hand, this energy is blocked by some specific conflict, it becomes dammed up and the self fails to adapt itself to reality, so relapsing to life on a lower, less complex level. The larger and more highly organized the society in which the individual finds himself, the more resistances and limitations his libido will encounter in trying to find expression and the greater is his necessity for providing adequate solutions for conflicts. An adequate solution does not imply that it is settled for all eternity. On the contrary the resolution of each conflict becomes in turn the battleground of a new conflict and the solution of the latter is on the basis of and consistent with previous solutions although it is never identical with them.

If conflict is the necessary condition of progress it is essential to determine what are its constituent elements. It is always a desire or complex of desires arrayed in battle formation against an opposing desire or complex of desires with which it is incompatible. It is, moreover, a conflict between the pleasure principle and the reality principle. Accepting Freud's hypothesis that we naturally prefer

[11] MacDougal, *Outlines of Abnormal Psychology*, 1926, p. 222.
[12] See note 10.

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whatever is pleasurable and avoid whatever is painful, we tend to resist contact with reality because of our natural inertia in the face of unpleasant demands of readjustment. The pleasure principle leads down the path of least resistance and calls for less effort in that reconstruction of the ego by which the individual learns to conform to the objective world. It caters to his emotions rather than to his intellectual powers. The demands of reality do not result in pure unalloyed pleasure for the ego. Consequently we find that we can do one of two things; either we can withdraw from reality *via* repression and eventually by "flight into disease" or the gradual substitution of fiction for fact, or else we can meet reality, including its mental and physical poles, by accurate adjustments of ourselves to our environment and to society. Conflicts appear because the strivings of the libido to attain higher levels are checked or counterbalanced by the resistances of the narrower ego which refuses to be projected into the unknown world of reality.

Ferenczi has given a rather interesting account of the transition from the pleasure principle to the reality principle.[13] We do not jump immediately from the one to the other. There seems to be a stage, characterized psychologically by the act of negation, which is intermediate between ignoring and accepting reality; in the first stage we simply ignore anything painful, thus making the world and the ego identical. Finding that this will not always work, we advance to the point where the alien outside world slips into consciousness in spite of "pain," but only on the condition that we attach the prefix "not" to it and try to abolish it as something real in itself. Finally we go on to negate this negation and in so doing affirm the existence of the unpleasant and painful. It is during this transition period of negation that repression takes place and we advance to the reality principle because in so doing we avoid and compensate for a greater pain; we give up the denial of reality and recognize it as a thing existing in its own right and by its own merit.

Given a universe in which the ego is continually divided against itself, the first rôle of repression is, then, to be a stepping stone, one kind of a solution to a volitional conflict. Its function resembles that of a crutch in the case of a broken leg; it is hardly a satisfactory substitute for a healthy leg, but it is much better to have it than not to hobble at all. But the solution of the conflict on this level is not morally as good as it might be. It is inadequate because it fails at the crucial point to satisfy the two opposed desires or to effect a synthesis of these forces on a level above that of the conflict. A thoroughgoing repression means the satisfaction of one desire at the expense of the other which leads to dissociation rather than integration. This latter is the object of sublimation which accomplishes on

[13] Ferenczi, *Theory and Technique of Psychoanalysis*, Ch. LXXIII.

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the basis of the reality principle a harmony between the ego and the alien world.

Seabury in *Unmasking Our Minds* wrote about repressions and inhibitions with the scorn and contempt of a mathematical logician for "*schöne Philosophie.*" His language is worth quoting—"whenever existence is moving in a negative circle and empowered by a wild and riotous will, repression is unavoidable. It is an archaic procedure necessary only so long as the individual is moving in a thoughtless path. Under repression the forces of life dry up and only the shell is left; the spirit tends to recede from actuality. Dissociation is induced by the very pain of living for it is characteristic of self-repression that it stands as a defense of the mind under abnormal and subnormal pressure of a fear-ridden world."[14] Repression, according to Seabury, is not only in its very nature contrary to reason, but it is an ignorant substitute for critical self-direction. The former either buries desires or forces them to suicide while the latter drags them into the light and "looks at them so intensely that the impulses become so changed and modified that there is no negative trend left to repress." From this point of view there is little room left for repression in a world guided by intelligent behavior. It seems to me that what Seabury has done is to take the negative side of repression, which is a fact not to be denied, and emphasized it to the exclusion of its positive value. His position would be more intelligible if repression as a form of dissociation were only an inadequate way of dealing with a conflict or a rather crude and barbaric substitute for critical self-direction. The defect of his analysis lies in claiming for the negative aspect of repression the whole truth and nothing but the truth. It is this unwarranted claim of absolute truth that is misleading since it neglects to take into consideration the rôle repression plays in sublimation.

A different conclusion is reached by Rivers and by Coriat in their investigation of repression. Coriat states that "the social importance of repression is such that civilized society would rapidly become chaos if it were not for the action of individual repression in protecting human personality and in erecting certain social barriers."[15] From this it is evident that repression is an instrument of safety for the individual in a society which involves the postponement of the satisfaction of desires to an indefinite future. Its danger lies in reaching that point of intensity which will cause neurotic disturbances or in leading to codes of behavior and standards that are morally wrong in that they neither recognize nor provide expression for certain fundamental desires. Rivers in *Instinct and the Unconscious* distinguishes between repression as "a process whereby a per-

[14] Seabury, *Unmasking Our Minds*, pp. 331 ff.
[15] Coriat, *Repressed Emotions*, p. 9.

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son tries to thrust out of his memory some part of his mental conflict and repression as a state ensuing when either through this process or by some other means part of the mental content has become inaccessible to consciousness.''[16] Repression is an active or voluntary process of which the subject is fully aware, which is definitely under his control, and which may become the subject of either rationalization or intelligent direction. For Rivers repression is not pathological as it is for Seabury; it is a necessary element in education and in all social progress. It is harmful only when conditions are such that it fails as a method of adapting the individual to his environment.

Contrary to popular opinion, a repressed emotion or desire is not predestined to sink even deeper into the unconscious. It can be directed to a more useful purpose by transferring the energy generated by the conflict from an asocial or antisocial end to one which is coterminal with the ideals of society. The function of sublimation is to provide a balanced control of the instinctive tendencies. If it were perfectly achieved, the result would be the complete adaptation of the individual to his environment and a thoroughly established harmony between the individual and society. As this degree of perfection is still an ideal, it follows that corresponding to degrees of integration and sublimation there are degrees of goodness. Perfect integration of all desires and complete moral goodness are two different terms for the same state.

We are accustomed to thinking of certain character traits as inherited and then modified in the course of life by a definite conscious effort directed toward a given end. This, according to the psychoanalytic school, is only a part of the truth. The really important source of character is the unconscious, the unconscious that is identical with the repressed states. The basis of character formation becomes emotional rather than intellectual since it is formed first by repressed childish impulses and later partly by escapes from reality and partly by successful sublimations. Repression as a factor in sublimation is both indirect and direct; indirect because the states which have been repressed in the past are the constituent elements in the unconscious from which comes the emotional energy essential to sublimation, and direct because repression immediately precedes any attempted sublimation. This is necessary because our intelligence is not yet sufficiently acute to discern immediately what would be a thoroughly satisfactory solution to a conflict and to create directly a synthesis of opposing desires in which each desire finds some expression and no one is wholly rejected. On the lowest levels of the unconscious reside the most primitive atavistic wishes of the self. These are not dead, but are held in abeyance by the censorship of

[16] Rivers, *Instinct and the Unconscious*, p. 185.

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the ego; they are repressed, voluntarily according to some psychologists and involuntarily, according to others, often with the conflict going on below the level of clear consciousness. When by the intelligent analysis of his own states of mind, the individual recognizes the conflict and drags forth the offending parties, he can judge their respective merits in relation to all his desires, and so formulates a coherent plan of action that will be morally good. In doing this he is effecting an integration which will include all desires, some implicitly and some explicitly, and which satisfies none at the expense of others. Such integration generally takes the form of sublimation because archaic primal desires can not be satisfied without some modification. Their expression seeks a higher level, as when the sex impulse which is most often repressed becomes a powerful factor in art or religion. Sublimation is not a form of mental therapy for abnormal pathological cases; it is a highly effective form of integration wherein repressed elemental energy is directed toward the social, ethical, and spiritual reconstruction of the self in its adjustment to the world of reality.

But even the concept of integration can not be accepted unreservedly as the panacea of all ills. The main charge against it is that it can not relate all desires in such a way that they remain intact and have lost nothing by being so related. As Parker insists, there is always some loss of value in the elements integrated which is not compensated for by the "plus" value emerging from the whole. Interests are not born to a full-fledged coöperation with their fellow interests; on the contrary they are developed in a relative isolation and with concentration, then emerging to struggle for supremacy with each other. Parker argues that "vividly contrasting elements balanced against each other whether they be social classes, human beings, or colors make up not only a more picturesque but in other ways a more interesting and valuable world than a rigidly organized or sweetishly harmonized one."[17] The conclusion is quite acceptable, but the premise, that integration excludes diversity and struggle, seems to me to be false. There is a very real danger of lapsing into quiescence once an integration has been accomplished, since human nature is inclined to rest on its laurels. What we need to emphasize continually is that experiences never repeat themselves exactly, that each situation is unique and demands a fresh effort on our part to meet it and not to retreat behind the defense mechanisms of the self. The old equilibrium is being upset continually at the advent of new interests. What happens then is that a new harmony, with the repressions that are a part of every sublimation, is created. The function of repression is that of providing diversity and opposi-

[17] Parker, *The Harmony Principle in Ethics*, Univ. Cal. Pub., 1924–25; p. 135.

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tion; it guards against any integration becoming a static affair and against harmony becoming a one-side abstraction. Thus conflict and harmony are not opposed to each other in the sense of being forever irreconcilable; they are both essential to any adequate integration and they are equally sources of value in that complete moral goodness which is the organization of all desires.

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ON DEFINING "EXISTENCE"

I

MR. DUCASSE, at Oxford, referring by name to Santayana, Strong, and me, declared that "what we need is an explicit account of the logical import of existential predications. Until we have it, the notion of a realm of existents is philosophically worse than useless, for until then it constitutes only a question-begging epithet. Indeed, the question of existence, which it begs, is one the very meaning of which is left undefined, and the 'realm of Existents' therefore is even more of a logical monstrosity than Anselm's 'God,' whose nature, at least, did not consist solely of its own undefined existence."

Unhappily, it is impossible to define unambiguously any of our ultimate terms of discourse. But it is true that in the case of our data of consciousness, we can usually indicate clearly enough what we mean by describing under what circumstances the data may be had—on the assumption that the qualities of our respective experiences are, under similar circumstances, at least roughly similar. Thus we understand, probably, what people mean when they speak of "red" or "pain," though these qualities are not, strictly, describable. And if we are "radical empiricists," we shall believe that *everything* is thus definable, by pointing to it. "Space" is an observable order of relations among experienced entities, "causation" is definable, perhaps, as Ducasse has defined it; and we may agree with him when he said, "The pointing to a place where at the time are perceivable the characters jointly defining what was meant by 'black swan,' constitutes the only proof we need, or ultimately can have, that black swans exist."

However, if we are critical realists, our case is more difficult. Although we may accept the definitions given by radical empiricists, we do not read into them the same meaning. For example, Ducasse went on to say: "Existence means presence at a place in an order-system, of a set of characters. Material existence means presence at a place in space during a time, of some set of causal proper-

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ties." . . . Now I can accept this definition of "material existence"; and, indeed, can accept it as a definition of "existence," since it seems to me unwise to stretch the term "existence" to cover "mathematical existence," etc. But the words will not mean to me what they mean to Ducasse. For Ducasse holds that the truth or falsity of any proposition is "a bare matter of observation," and hence that the question whether an external world exists is absurd, if we mean by "existence" an unobservable status; in its only legitimate meaning, the answer is obvious: we *observe* external things to exist.[1] For a property to be given to consciousness as "in space during a time" is, *ipso facto,* for it to be existentially "present" there. . . . But I, as a critical realist, hold that the status of "being an existent" is to be sharply distinguished from the status of being *given*—even from the status of being given to "normal" experience, or to "collective" experience, with hallucinatory experiences weeded out. The *givenness* of something never is or implies its existence. Nor is existence the status which experience itself (in the sense of *what we experience*) has. It is the status of the physical things to which we are reacting, and of the events which constitute our experiencing, and reacting. But all these things, or events, remain behind the scenes, objects of belief, of intent, of reaction, but not of intuition. The presence of existents, of time, and space, and causation, is betrayed, revealed, by experience. But I mean by "causation" something that lies behind the observable sequences which Ducasse defines, and by "existence" something that can only be meant, and believed in, not observed, by a conscious being.

I have myself defined "existence" as "having a locus in space-time, and thereby being a part of the causal nexus which constitutes Nature." . . . But I do not mean by space and time the "pictorial space" and "sentimental time" (to adopt Santayana's picturesque phrases) of our experience, nor do I mean by Nature what Dewey or Whitehead means. I mean a universe whose existence remains for us an instinctive assumption and a reasonable hypothesis; a universe of things which themselves, in their brute existence, *stay outside* of our experience. For it is only their essences, at best, which appear in our experience. . . . It is only by such explanation that I can escape grave ambiguity in my definition of "existence"; and even so, I am saying what I do not mean more clearly than what I do mean by the term!

But if that *is* the direction in which existence lies, if there *is* a status of the sort that I have, however vaguely, in mind, what better definition can be given? Santayana defines "existence" as

[1] Paraphrased from his essay in *Contemporary American Philosophy,* Vol. I, pp. 317–320.

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"being in external relations."[2] But should he not specify spatio-temporal-causal relations? For he means by "existence" "something peculiar to the flux of nature, and only as actually flowing. . . . When the word 'is' designates existence, it claims for the object of intent a place in this flux."[3] And he makes it very clear that the data of consciousness do *not* have a place in that flux; it is only matter, substance, that has a place in it; and it is only matter, therefore, that exists. Our data of consciousness have, as such, a quite other status, viz., that of givenness. But is not givenness an external relation? If so, the definition of "existence" as "being in external relations" is too broad.

This same conception of existence as transcendent to experience is expressed in his definition of an existent thing as "the butt of action." "The hunter and the hunted believe in something ambushed and imminent: present images are little to them but signs for coming events. Things are getting thick, agents are coming together or disappearing: they are killing and dying. The assurance of this sort of being is assurance of existence."[4] But unreflective men, and many philosophers, take their sense-data to *be*, themselves, the existent things (or parts of the existent things) upon which they are directing their action; instead of, as Santayana and I hold, merely the way in which we imagine those things. So this type of definition, though valuable, is no less ambiguous than the others.

II

The best way to explain what I mean by the status "existence" is to contrast it with the status of "being an essence." . . . An essence is a character, or complex of characters, a "describable somewhat." The word "describable" is here meant to cover the sense in which we can describe ultimate qualities, such as "red" and "pain." Any *character*, any *nature*, can be, in this sense, described. And so everything that exists is (or has) an essence.[5]

The term "essence" has thus a far wider denotation than the term "existence." For whereas there are an infinite number of non-existent essences, there are no existents which are not essences. But it will not do to define "essence" as "anything mentionable"; for existence is mentionable, and existence, itself, is not an essence.

[2] This JOURNAL, Vol. XXI, p. 373. This is repeated in *The Realm of Matter*, p. 5: "Existence consists in having external relations."

[3] *Ibid.*, p. 373.

[4] *The Realm of Matter*, p. 9.

[5] It does not matter whether we say that some essences *are existents*, or that some essences *have existence;* nor whether we say that all existents *are* embodied essences, or that all existents *have* their respective essences. These varying locutions refer to the fact that all existents are, *as to their natures*, essences, and *as to their status*, existents.

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This point needs careful attention. There is, of course, an essence "existence," which figures in our discourse. But existence itself is not the *essence* "existence," it is a status which an entity that we term existent, and take to be existent, may or may not have. For we may be mistaken in our attribution of existence; we may *discourse* of "existents" that do not exist! The difference between genuine existents and merely supposed existents of exactly the same nature is *not* a difference of essence. The existent universe is not merely a vast collection of essences, not merely a vast complex essence. No ontological argument could give such a universe existence, any more than it can give God existence by defining God as an existent being, or give any particular in our experience existence because we may define it as, or take it to be, an existent.

Thus to the question, "Is existence *given?* Can it be a datum of consciousness?" the answer is, The essence "existence," the essence "this existent," etc., can be (in some sense) given, but not existence itself.[6] In perception we feel ourselves to be confronted by existents. And we naturally attribute the characters which we sense to these supposed existents. In other words, we suppose that these sense-data are, or are characters of, existing things. But it is merely the *essence,* "an existing thing" which is, in this sense, present to consciousness. All essences are, indeed, what they are *given-as;* in that sense, experience is "infallible." If what I am conscious of is "this existent," then that is what I am conscious of, that essence is "given." But *existence itself,* not being an essence, *can not* be given, and therefore can not be guaranteed by the character of what is given. Whether what is given *exists* is always a further question, not answerable by the experience itself.

I am led to wonder, then, what Lovejoy means when he declares, in his admirable book (with which I *almost* wholly agree):

> An "essence" that has a position in space is not a "mere essence"; it is precisely what is commonly called a particular, inasmuch as it exists at a particular time in a particular place, and not elsewhere. . . . If there is anything whatever that is certainly dated and localized (whatever be the nature of the space in which it is localized), it is the content of perception.[7]

His "content of perception" (what is "given" to him in perception), may indeed be "this bit of space," "this lapse of time," "this object ten feet from my body, hard, brown, etc." But because those essences are *given,* can we assume that they *exist?* If his use of the term "existence" even roughly corresponds to mine,

[6] I do not wish to raise the question as to the proper usage of the term "given," "datum," etc. I am quite willing to say that existence is "imputed," rather than "given." Or I am willing to say that existence is "given to intent." Surely this is only a verbal matter.

[7] *The Revolt against Dualism,* pp. 112–113.

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he clearly has no right to say, *on the deliverance of the datum,* that what is given "exists at a particular time in a particular place." It may be *given* as existing in a particular space and time; but there always remains the question whether what is *given* as existing *exists,* whether what is *given* as in space *exists* in space, and so on. For what is given is (in the nature of the case) only essences, say the essences "covering so much space," "enduring through so much time"; and if these relational essences are actual relations among existents, it is just a fortunate coincidence, a successful stroke of cognition. Our apparent space in front of us is not space itself, it is just the essence "this bit of space" given to our consciousness.

Lovejoy assumes that anything which is "dated and localized" is an existent—which seems a proper corollary of my (and his) definition of an existent as that which has a locus in time and space.[8] But there are two possible confusions here. In the first place, it is possible to date an event in an imagined but imaginary time, and to localize it in an imagined, but imaginary space. And that, I hold, is what perception does. Perception is *imagining things out there in a space.* By good luck we may imagine things as they are. But *qua* having the experience, we are merely imagining. And an imagined but imaginary space *is* not space, any more than an imagined centaur is a centaur or an imagined God a God. To be sure, in perceptual experience we imagine very vividly, and confuse the essences which we imagine with the physical things which actually confront our bodies. But it should be the purpose of epistemology to disentangle this confusion. And the contents of imaginary times and spaces are not existents, however accurately they may be localized and dated therein. If they were, the existing world would be far more complicated than it is!

The other possible confusion springs from the fact that we often date and localize things *mistakenly.* A supposed historical incident that never happened may be dated and localized just as meticulously as one that did happen. I may, and constantly do, discourse of "particulars," and find "particulars" given in my experience, which are *mistakenly* dated at a certain time, *mistakenly* located at a given place. I may speak, for example, of the raindrop on my south window to-day, June 1, at 3 P.M. I may even *see* it there and then, in the sense of having the visual experience thus described. That does not prove that it *exists.* I may merely imagine it to exist; I may be the victim of a hallucination. Dates and localizations prove nothing, unless you can prove that the particular to which you are assigning a locus is *correctly* assigned to that locus, and that

[8] Lovejoy would say "and/or space," whereas I believe that everything which exists in time exists in space, and *vice versa;* in other words, that all existence is in space-time.

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the locus is in actual space-time, and not in a merely imagined space and time. Hence we can not define "existence" merely in terms of what is dated and localized.

III

As a matter of fact, I can not believe that Lovejoy has fallen into either of these errors, though his language strongly suggests it. I suspect that he holds our sense-data to be existents *not* because the essences *given* are "something spatial," "something existent," etc, but because later reflection assures him that the very *givenness* of these essences—of any essence—is a species of existence. An earlier statement of his bears out this interpretation.

> I am unable to say that the datum in perception "does not exist." For, though what is given is an essence, it is plainly an essence which has "entered into existence." It has acquired a locus in time, and in some cases also in space. . . . An essence cannot be "given" without being given at a particular time; and the particularity of the time of its "givenness" converts that which *is* given into a particular and an existent.[9]

Being as well aware as any living person of the difficulties of fitting our sense-data into the physical world, Lovejoy must mean that they have another kind of existence, *mental* existence; the space and time in which they exist are *mental* time and space. . . . Now of course he has a right to use the term "mental existence" as a synonym for *givenness*. But the use of "existence" in this sense seems to me unfortunate. For if we have two "existential" realms, two sets of "existents," we want to know if they can be somehow fitted together, and if they interact. But such questions seem to me foolish.

For, as I hold, the act of sensing an essence is simply the act of vividly imagining an essence (and perhaps reacting as to an existent). This is a highly complex existent event, with a definite date and location in the world of existents. But the essences which are "embodied" in *that* event are quite different from the essence which is thereby *imagined* and *supposed* to exist. The latter is a purely imaginary entity, for which no locus has to be found, in *any* time or space save an imaginary time and space. The "field of consciousness" is not an existent *place*, it is just a name for the totality of essences (or the total complex essence) which is "before the mind," i.e., which is imagined, at any moment. *Having* that field of consciousness is a datable event, but the essences which constitute that field are, like all essences, dateless—except in the sense that we may have the essence "a certain date." *That* date, however, the date internal to an essence, may be a *past* date, as in the case of

[9] From a circular letter sent to his fellow critical realists in 1919.

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memory. And in any case, *that* sort of datedness does not, as I have pointed out, imply existence.

Lovejoy insists that the "content" of perception is "existent simultaneously" with the act of perceiving. . . . The "content" must be "what is given"; there *is* no *other* "content." But in what sense are these given-essences "coexistent" with the act of perceiving? They are not "compresent" in the field of consciousness, for the act of perceiving is not present in that field. They are not co-existent in any realm of existence, for merely imagined entities, even if you do call them "mental existents," do not exist in the same *sense* of the term as the sense in which physical things and perceptual acts exist. . . . Of course Lovejoy does not admit that given essences are "merely imagined"; he believes they exist, right here. But where is "here"? I say, in a purely imaginary place. And what is in a purely imaginary space is not in space itself, and so does not exist. How can he know that I am not right?

If I am right, givenness is not an existential status. Essences may have the status of existence; they may have the status of givenness in some one's consciousness; or they may be neither existent nor given. It is necessary to distinguish these three "realms of being," or as I prefer to say, these three *statuses*. (I am not considering in this paper Santayana's fourth "realm," or status, *truth*.) A certain essence may attain the status of existence at a certain date; it may attain the status of "being given" to a consciousness at a certain date. But we must clearly bear in mind that it is only *essences* that are "given," only characters.[10] And the fact that an essence belongs to the class of essences-given-to (imagined-by)-a-conscious-organism, does not mean that it belongs also to the class of existing-essences.

We all await eagerly Lovejoy's further exposition of his views. Perhaps it will turn out that his difference from Santayana and Strong and me on this point is merely verbal. Perhaps "mental existence" means no more for him than "givenness." But I am afraid his use of the term "existence" here implies a serious divergence in metaphysics. At any rate, as a fellow critical realist, I wish to point out that where he writes, "Knowing must consist (partly) in the existence, at a given time and within an individual field of consciousness, of particulars which do duty for other particulars extraneous to that time and that field," [11] I should substitute "givenness," or "presence," for "existence." . . . I am not, therefore, a dualist. That is, I do not believe in two sets of existents, physical

[10] This does not mean necessarily, or usually, *abstract* characters. The essences given in perception are highly definite, as, "This raindrop (perhaps minutely detailed), on my south window, June 1 at 3 P.M."

[11] *Contemporary American Philosophy*, Vol. II, p. 97.

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and mental. All the existents I find it necessary to believe in belong to a single time-space order.

But I can not *point* to existents, as the radical empiricist thinks he can. Or rather, I can point to them (for they are all about my body); but the radical empiricist will think I am pointing, with the same gesture, at my sense-data! I can not *find* existence in my field of consciousness, I can find merely characters there, which *may* exist. I can only *define* existence. My definition does not give the connotation of existence; no definition could. And if I define it in terms of space, time, and causality, I can define space, time, and causality only as orders of relations among existents. All definition is circular, in the end, and we must make the best of it. But I hope, nevertheless, I have made reasonably clear, by contrast with other views, the sense in which some of us use the term "existence."

DURANT DRAKE.

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BOOK REVIEWS

Contemporary American Philosophy: Personal Statements. Edited by GEORGE P. ADAMS and WILLIAM PEPPERELL MONTAGUE. Two Volumes. New York: The Macmillan Company. 1930. Pp. 450; pp. 447.

This symposium of philosophical testaments differs at least in one respect from the "Spoon River Anthology." The victims did it themselves. It is not improbable that I have been asked to review these volumes because I was, in advance, frankly skeptical of the project. I doubted whether there were more than a half dozen philosophers in America whose intellectual biography was of any importance to anyone except themselves. Also the project seemed to me merely falling in with a fad started by the Germans, and subsequently taken up by the English. Let me therefore begin by admitting my partial repentance. The volumes are surprisingly readable, and the results of the project have a real value. Other reviewers have dwelt on the somewhat arbitrary choice of contributors. But that is inevitable. If one misses a Whitehead, who deserves a double place in both the British and the American volumes, or a Carus lecturer like Mead, those are things that will happen in the best regulated Who's Who.

Yet one wonders just what the future historian of American culture will think of this assemblage. Are there really no philosophers in America who are not professors in academic teaching, or else former professors now expatriate? Are there no philosophers north of the Canadian line? Are there none of note under forty-

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five years of age? What conjunction of planets and comets made the year 1873 so prolific in new-born teachers of philosophy? In how far is American philosophy simply the dying echoes of its one great productive Faculty, the famous Department at Harvard thirty years ago?

And then as he reads more carefully the expositions of doctrine, will he not wonder further? What variety! And yet what a range of omissions! There are those here who are in close contact with certain aspects of American social change, Dewey, Tufts, yet there are few, if any, in touch with the full range of even our American society—judging from any mention of such interests in these volumes. No great harm in that, you may say! But then the same holds of other things—of modern physical and biological science, modern economic theory, modern historical research. Even more notable is the almost complete lack of reference to literatures, contemporary or otherwise, or to art and music. Philosophers, it seems, need know only philosophy.

But do these writers know philosophy? Few of them classify cleanly under one or another familiar philosophical "ism." This is all to the good. Yet they do generally fall into a small number of rather set types. Such, for instance, are the naturalistic idealists, who are anxious that you should know the new idealism has its feet on the ground, however much its head may swim. And then there are the idealistic naturalists, who are as eager to point out how their new naturalism has an aviary attached, wherein every bird of the spirit may flap his wings and twitter, even though there is no place whither he may fly away. Philosophy is for most of these writers a rather specialized and technical discipline. The more surprising is it, therefore, that the outlook upon the history of philosophy itself seems in many or most cases so extraordinarily casual and superficial! One is led to wonder whether American academic teaching of history of philosophy does not end in ruining appreciation of that history. The teacher of philosophy must reduce Plato or Leibniz or Hegel to a set of points, one, two, three, suitable for sophomore digestion. I can remember reading William James and saying to myself, "Heavens, has this man ever read Hume, that he attributes to Hume these schematized doctrines?" How much more easily shall we, who have not the depth of sympathy or the artistry of expression which makes a William James, fall into the same error, the same over-crudity of schematic summary!

I was particularly noting, as I read these volumes, the references to Kant. There are a few keen remarks, but most of these references simply do not touch Kant at all. By saying that, I am not claiming I have the true doctrine of Kant, which these references

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miss. One may be unable to fathom or interpret all that Kant was driving at; one may believe, as I do, that Kant was ever changing, and never reached any one final and consistent doctrine; and still hold that certain pretenses at interpretation of Kant must be wrong, for the reason that if Kant did mean just that, then he was intellectually on the level with a beginner in the elementary philosophy class. Much of our teaching of philosophy is humbug, anyway, when we are teaching such a philosopher as Kant. We stick to Kant's terminology, since that is the easier course, and gives the student something to memorize, and also lest we fall into anachronism by venturing to translate him into the terms of current controversy. But until we can translate Kant into another terminology, we have not thought his thoughts; we have only memorized his language. Suppose, instead of asking in the solemn ritualistic style, "How are synthetic judgments *a priori* possible?" we asked, "What is the exact analysis of our ability to rise to knowledge of facts in the order of nature, as distinct from the order of knowledge?" or "What is the source of the compulsiveness of such fact?" or again, "Why does Kant deny that there is any such thing ever as 'given' fact, whereas Hume held there could be no acceptable fact which was not 'given'?" If we asked such questions, we should not be led to contrast the Kantian *a priori* with experiential fact, or speak of the "subjective" approach to knowledge of "Hume and Kant." If thereafter we rejected the machinery of the Kantian answer, at least we should not have lightly sidestepped, or failed even to notice, the Kantian problem. I am amazed, furthermore (though I here depart from what is contained in the volumes before us), to find keen thinkers, trained in the history of philosophy as it is taught in America, confusing Kant's "presuppositions" with "implications" or their converse; or proving that mathematical thinking is "analytic" in the critics' use of the term, meaning by "analytic" what Kant meant by "pure," and then assuming that they have refuted Kant's assertion that mathematical thinking is "synthetic." Still, this is excusable, for it does show some signs of thinking on the part of the critics. But references are multiplied in these volumes before us to Kant, and not to Kant only, but to all the great figures of philosophy, which, to me at least, seem to show no philosophical thought or depth or comprehension whatever. I can only explain it by supposing the writers have been teaching sophomore courses in the history of philosophy, and marking quiz papers, until their minds are cluttered up with stereotypes.

We must, of course, recognize the limitations inherent in any such series of essays. William James used to speak slightingly of the philosophy professor who could not express himself in less than

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whole volumes. Yet there is much to be said for the criticized professor. Doubtless there have been little minds who spread themselves thin over multitudinous pages. But it does not follow that great philosophy can be brief. One must at least block in a background; one must have elbow room. James himself admits that we see into a generalization, and it takes on meaning for us, only as it lives in the rich variety of its particular applications. A superlative power of suggestion can sometimes be brief, and yet masterly and profound, but that is art raised to the level of genius. We should not expect such writing in a set of essays written to order. Some of the contributors here have previously written systematically and at length, and were thus in position to summarize rather neatly, with reference back to their longer works. Some of the "elder statesmen," full of experience and matured through years of teaching, speak from out of that accumulated wisdom words of advice and of warning. Some of the younger men concentrate on a few ideas which seem to them original and worthy of emphasis, not trying to cover the whole range of philosophic discussion. It follows that the greater minds have not always been those making the abler contributions here. Hence it would be absurd of a reviewer to try to criticize or answer in detail any particular paper, even if the reviewer's opinion were of any great importance.

Yet I think a few words of comment may have some slight value, not because they are mine, but because any outside observer, glancing from paper to paper, would see interesting points of comparison. As I was reading these papers, I found myself following with enthralled attention every little scrap of autobiographical detail, even when the author was unknown to me, delighting in the personal flavor so prominent in the contributions by Harold Chapman Brown and Walter Everett, Santayana and Fite and Singer, Dewey and Woodbridge. But when I came to the systematic presentations of doctrines, I sometimes looked ahead to see just how much further I had to plow along to reach the end. I think this effect is largely due to the style of presentation, for ideas ought to be even more interesting than personal reminiscences. I can not agree with Hartley Alexander that " philosophy is biographical in its mode, and in its method autobiographical." I would have said, "Philosophy is intellectual in its mode, and in its method scorns 'wishful' thinking." The details of a biography, insignificant in isolation, may in conjunction give us that necessary corrective to our vision which enables us to see why a philosopher says what he says. But a "philosophy" that is mere autobiography is of interest only as one more, often somewhat meagre, personality, added to the multitudes of personages that fill the pages of history and fiction.

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I am not so generous a "philosophical liberal" as Professor Ducasse. Though welcoming diverse opinions, I believe a philosophy should aim at being true, and that most of them contain error. A philosophy that does not risk error does not attain truth, however charming an expression it may be of personal tastes. I find little profit in a philosophy with which I am not asked to agree or disagree, and challenged to give reasons for my stand. That is why I like the contribution of Professor De Laguna, which makes me feel how much we lost in losing him. De Laguna was skeptical, and said so frankly. He thought we had hardly begun the task of philosophy. But he did not merely utter a cry of despair. He laid down definite theses, with which one can disagree, and I often do disagree. I like this much better than any mere expression of personal preference, and I think only this sort of philosophizing has any real future. I have never been convinced that there was any genuine conflict, in the great philosophers, between the philosophies as being personal reactions and as having objective reference. They think differently, but about the same world. I am not sure there is any such incompatibility in the realm of science, but if there is, that merely shows that science is not philosophy.

Some of these writers here assembled have had very real influence. Possibly no one in America has so powerfully molded our American mentality as has Professor Dewey, through his influence on the theory of education. Some of that influence has not been altogether good, as Professor Dewey would himself doubtless admit, for when you let ideas loose in the world, they sometimes have ways of their own, and run wild. Others, like Professor Santayana, have a pervading potency, which grows, and springs into view at unexpected places. America is a country where ideas have power, even good ideas as well as bad, in spite of what critics say of us. Hence philosophy does have an effect. Philosophy is not, and should not be, a direct intervention in daily affairs. Philosophers ought not to turn into social engineers, even though Plato and Professor Dewey recommend it. I suspect Professor Dewey himself has been most powerful as an influence when he has been most technical and theoretic, and not when he was writing articles on current topics for the periodicals of the day.

Mr. Mencken tells us that the country would be far better off, if all but two or three of our fifteen hundred professional philosophers were driving taxicabs or serving with the rum fleet. This I doubt, taxis are unsafe enough now; but the fault with American philosophy is not that philosophers are not admired by the public, or even by that public which Mr. Mencken represents. It is well that they should not be.

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The much more serious difficulty is that university administrations do not realize that philosophers can not be trained in the time, and by the methods, which turn out passably good Ph.D.'s in Chemistry and French. Most American philosophers are, as philosophers, uneducated. These autobiographies prove that thesis up to the hilt. Of course they are not uneducated, as judged by ordinary citizen standards; nor as teachers of the elements of philosophy. The sweetened pills of knowledge which sophomores swallow with their eyes shut are even rolled and prepared with a better conscience by those teachers who do not know too much. But as philosophers, our fifteen hundred as a body, or even a goodly number of these select ones here assembled on dress parade, are uneducated in their profession. It takes a vastly more elaborate education to make a philosopher in this age of advancing science and scholarly knowledge, and growing social and political sciences, than there is time for in the ordinary school or graduate training.

Part of the time of every young university instructor in philosophy ought to be devoted to the further post-degree learning of his subject. And the only way it can be done is to pay him for doing it. It should be done in definite courses and seminars in which he can be an inspiration to other oncoming graduate students, and for which time is allotted and pay given, just as he is paid for giving courses of his own. No young instructor ought to remain at the same university for any great length of time. Those, however, are merely suggestions. The main point to note is that philosophy is not just another limited subject, like other Ph.D. subjects. Plato would have his young men spend half their lives getting ready to study philosophy, and the available preliminaries were vastly simpler in his day than now. Trying to pick up even the first essentials of philosophy in the intervals of teaching and other duties, not to speak of the task too seldom achieved of learning to write with force and effectiveness—these things take too long. Philosophers grow old, and their minds inelastic, while trying to assemble the tools of their trade. It is a pity that there is no young man under forty-five in all America, whose training has been intensive enough, and whose contributions to philosophy would be good enough to deserve to attract the attention of editors of a symposium like this.

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Die Kunst. BRODER CHRISTIANSEN. Buchenbach i. Br.: Felsen-Verlag. 1930. Pp. 260.

This volume is something more than a handbook for the esthete. The author's easy ability in art-analysis is founded on good observa-

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tion and, often enough, on a sound philosophy of beauty. And though the reader may not always agree, he is never left guessing. When Mr. Christiansen speaks carelessly of "the lively pulsing of the non-sensuous inner tones in the tension structures," for instance, he has already made himself clear by previous explanation and example. Examples, in fact, illustrate the text at every point so that we are able to follow the rising syntheses of tension structures as Christiansen's system of tension dynamics is applied to each of the arts.

At the outset the great art public is divided into the *musisch* and the *amusisch*. Between them is a gulf not to be bridged by any art education, however thorough or adroit it may be, so long as there are minds that take the grammar of art for its logic. Christiansen himself analyzes the psychical connection between content and expression as it occurs in each art with an ingenuity of insight at times extraordinary. But we do not wholly escape disappointment. For instance, we are sure that it is a false reduction to physiological mechanics to take the tenseness of the rising glance as a functional factor in the exaltation feeling produced by Gothic architecture.

Though the "post-sensuous" and the non-pictorial are elements of first importance in *Die Kunst,* Christiansen deletes the word "metaphysical" from his art vocabulary as Kant the word "objective" from his esthetic researches. And as in Kant's case nothing is lacking but the name. The relationship of things objectively dissimilar is explained by their post-sensuous properties (Innentöne). There is, by the way, no arbitrary freedom for the artist. It is as though the object were driven from within by its basic timbre to seek allied timbres and it is therefore as unreasonable to suppose that the artist makes his art-object as to believe that the gardener makes the tree he cultivates. Yet the artist by providing suitable sense-forms for the object through a sort of divine intuition of their mutual adaptation first makes apparent the spiritual content of nature. For there is this great difference between nature and art: In nature there are no imperatives, while art must always take a definite stand even though the artist himself creates blind to the goal. Art-forms, determined in each case by the common denominator of the inner tone, are given as: Impressionism, or spectator-art; Classicism, or participation-art (Einfühlungskunst); and Expressionism, or the art of the psychogram.

What Goethe discovered by his experiments in the mood-effects of certain colors Christiansen would follow up in each sense-form as well as in the object which also has its inner or spiritual content. The fundamental or transparent character of music is taken as a result of the purity of its sense-form, though the author adds that

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even here we observe various degrees of remoteness from reality. Not only music but each art structure represents the phenomenon of "out of three sounds . . . not a fourth sound but a star," and it is because of the artist's ability in combining object, technique, material, and sense-quality that the complete art-object is capable of producing a mood which stands superior to the sum of its mood-differentials (inner tones).

Die Kunst is noteworthy both for its wealth of art ideas and for the appeal of its style. We read, for example, of the etcher's "bounding, furrowing and folding," not, we are reminded, for the purpose of suggesting sensuous colors, but by transfer value for opening the way to their inner tones.

We wish to insist on the value of Christiansen's systematic approach to esthetics, and we believe that he succeeds in general in steering between the devil of explanatory analysis and the deep, blue sea of art's mysterious origin and appeal.

M. Whitcomb Hess.

Ohio University.

JOURNALS AND NEW BOOKS

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Bhattacharya, Krishnachandra: The Subject as Freedom. (Indian Institute of Philosophy.) Bombay: G. R. Malkani. 1930. 206 pp.

Claparède, Ed.· L'Education Fonctionnelle. (Collection d'Actualités Pédagogiques.) Paris et Neuchâtel: Delachaux & Niestlé S.A. 1931. 266 pp. 4.50 fr.

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Parker, DeWitt H.: Human Values. An Interpretation of Ethics based on a Study of Values. New York: Harper & Bros. 1931. viii + 415 pp. $2.50.

Reininger, Robert: Metaphysik der Wirklichkeit. Leipzig und Wien: Wilhelm Braumüller. 1931. xi + 407 pp. 11.50 M.

NOTES AND NEWS

During the week of October 18, 1931, the Second International Hegel Congress will be held in Berlin. Since this is the centenary of Hegel's death an unusually interesting celebration has been planned. Detailed information concerning arrangements and the proposed program can be secured from Dr. Helfried Hartmann, Berlin-Britz, O.-Brasigstrasse 34.

Felix Meiner announces in this connection the publication of two important books on Hegel: a new edition of Hegel's *Esthetics* and the publication of hitherto unpublished manuscripts of Hegel concerning Natur- und Geistesphilosophie.

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Psychological Bulletin.—Princeton, N. J.; Psychological Review Company.
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Monthly. Founded 1904. Edited by Samuel W. Fernberger.

Psychological Monographs.—Princeton, N. J.; Psychological Review Company.
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The Journal of Philosophy

MORAL FREEDOM AND POWER

TWO considerations have led to the writing of this essay. The first is the conviction that moral criticism, as it is involved and implied in the law, education, the church, politics, manners, morals, etc., is really significant and is what it claims to be,—approval or disapproval of the acts that men choose to perform. The fact indicated by moral criticism is moral freedom.[1] The other consideration, which together with the first yields the subject of this essay, is the common practice, in philosophic as well as popular discussion, of rejecting moral freedom on the ground that man is the victim of his many and obvious limitations. Investigation showed, however, that the weight of interest remained (or, possibly began) in the question of human limitation or power; and it appears that there has been a mighty effort to prove either that man is really not limited in power, or that it is his destiny to overcome his powerlessness. Now it is the contention of this essay that the notions of moral freedom and human limitation are so intimately connected that to deny human limitation is to deny moral freedom: and, further, that a doctrine of human power not based on moral freedom is not tenable.

The same fact—moral freedom—may be described in different ways. It is, for one thing, the capacity of a person to select acts and therefore really to be the author of them. To select an act implies that the act is an alternative to one or more other acts. Really to be the author of an act implies moral responsibility and subjects the agent to moral criticism. Moral criticism is significant, then, only in case the agent is regarded as being morally free. But moral freedom seems by this account to involve limitation: for moral freedom is the capacity to select, and selection is entirely dependent upon what is alternative.

However, this limitation is not a limitation of moral *freedom*, for this freedom is a fact, without degree, whenever an act performed was an alternative to acts not done. What, then, is this limitation by alternatives? As we shall see, it is a limitation of the moral agent's *power*. Men have not the power to do everything they wish to do or can conceive, but only those things that lie

[1] "Moral freedom" is used in distinction from "intellectual freedom," the former referring to conduct, the latter to thought.

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immediately before them as alternatives or that can be reached by these alternatives and so be made into alternatives.

Alternatives are many or few, fruitful or barren; and men differ in their powers, though they are equal with respect to moral freedom. For all men select—rich man, poor man, great, and little—but the scope of alternatives differs greatly among these: for example, the poor man, generally speaking, can not travel.

Morality is more than freedom. Because of his freedom man is subject to moral criticism. What a man does he may be called upon to justify: and to justify is to show that the act actually performed, rather than any of the acts that were alternative, was in fact the act he ought to have done. Here we meet what seems to be another kind of limitation, and it may appear that the ways of the human spirit are hard! Man's power is shortened by what actually *is* alternative for him: now we find in addition that out of what he can do at any given moment all alternatives but a defined one *ought to be* rejected. There is a principle or moral law that commands and instructs the moral agent in relation to his alternatives. Such a moral law might be: that the moral agent ought to perform that alternative which among the others represents the greatest value. It is of the essence of the moral situation that moral law can be disobeyed: man can in fact do the worse, though he ought to do the better. That is, he is morally free.[2] But if the fact of moral law suggests limitation because it is imposed upon man, this limitation is not external but is self-imposed. An external command has *as such* no moral significance. Or, in other words, moral law is obligation, and (moral) obligation can not come from an external source. One is held responsible and holds responsible: one directs moral criticism upon others and upon oneself: one justifies one's own conduct and requires that others justify theirs. These facts and their implications constitute man's admission to himself and acceptance of moral law.

We are primarily concerned with the notions of *moral freedom* and *moral power*, the latter having been derived from the fact of man's limitation by alternatives of conduct. I shall try to show how these notions are mutually compatible; how the latter is dependent upon the former; how they have been confused with each other, or loosely or incorrectly defined.

The first proposition worthy of careful consideration here is that the discovery of man's comparative powerlessness, the discovery of his multitudinous limitations, is not to be identified with, or used as the ground from which to infer, the proposition that he is not morally free. Now if one asks "the man in the street," Is man free? he is

[2] Moral freedom, thus understood, is the fact that, though man is subject to moral law, he can act in disobedience of it.

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very apt to reply in the negative. He will speak of heredity; of the influence of personal history; of determination by the environment, including the traditions and conventions he has been taught to accept; of the body, with its special confinements to space and time.[3] In the back of his mind he cherishes, but at the same time seems forced to reject a kind of popular idealism, where "freedom" means the complete absence of limitation.

The romantic and the religious interests in freedom resemble the popular. Man not infrequently romantically wishes that things were other than they are. He longs for a past Golden Age, or for a future or distant Utopia. He seeks escape from surrounding evils, where "evil" generally means for him "opposition to what man wishes for." The romanticist may even fly in the face of contradiction and wish for "whatever it may be that man does not and can not have"—so great is his lust for complete absence of restriction. (Notice in this connection the medieval code of courtly love.) The religious interest in freedom is manifested in man's persistent hope that the universe is based on a principle of justice; that the world is really good; that evil may be explained somehow in terms of good. Hence the Christian looks forward (or used to) to Heaven and immortality; to escape from the confinements of his body and of this space-time world. In some forms of Hindu religion man is supposed limited and involved in evil until he sees himself as really part of what we may as well call God; and in mergence with God he is supposed to escape limitation and evil. "Religion," says Professor Whitehead, "is directed to the end of stretching individual interest beyond its self-defeating particularity" (p. 23, *Process and Reality*).

Here I want simply to call attention to the error of allowing our zeal for a complete absence of limitation, with the growing empirical awareness of its impossibility, to lead us to conclude that we do not have moral freedom. Later we shall consider how, or whether, a complete absence of limitation is compatible with moral freedom.

Now the empirical discovery of man's comparative powerlessness does not dismay all men, nor dissuade them from believing that Man has his Heaven. There is a dignity about being a thinking thing, to which man's empirical limitation is not kind. Man is apt to feel it to be an affront to Reason that he should be located in space and time. He not only wants to be "spectator of all time and of all existence," but he would like to add to this epistemological dignity an ontological respectability. But only the Absolute has ontological

[3] Facts of heredity have been used, against moral freedom, to prove determinism, but in accordance with the views held in this essay they merely contribute to the determination of what is alternative for the moral agent. Directions of opportunity are defined by the body: the body is a set of opportunities.

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respectability. In consequence Man has not hesitated to assert that he is not *really* identical with God, he is at least made in His image. Or, less picturesquely, Man in his attempt to escape limitation by *this* existence, in *this* space, at *this* time, has claimed that to the extent to which he is real he is absolutely without limitation. Let us investigate this notion of power and see its implications for moral theory and, more particularly, for moral freedom. Best for our purpose are the views of Plato, Spinoza, and Kant.

While Plato is not the first philosopher to have rejected the empirical world as the proper residence of Reason, yet he is probably the first of the great rationalist architects who imagined such a suitable mansion in elaborate and careful detail. The empirical environment, which we have suggested offers to man his only opportunities for action, is for Plato only a prison. (Cf. *Phaedo,* Jowett, 66, 67; also *Republic,* allegory of the cave, Bk. VII). This prison primarily prevents awareness of truth and reality; but it also holds the will to actual ineffectiveness. This is also shown in the *Gorgias* as well as in the *Republic,* where the Tyrant (especially the public tyrant) who at first sight seems to be the most powerful of men turns out to be lacking in real power: he has a sort of paralysis of the will; he is the slave of slaves: he is in bondage to his desires, passions, and to ignorance.

The proposition that "no one does wrong voluntarily" (*Gorgias* 509; and many other places) makes meaningful the nature of the tyrant's bondage. It indicates that in bondage a man can not will, or act (but, rather, is acted upon); and that bondage is evil. The conjunction of "do" and "wrong" in the expression "do wrong" is the joining of incompatibles, for the will, according to Plato, can not enter into any wrongdoing. The doctrine that "virtue is knowledge" gives us further information about the activity of the will. Knowledge refers to the "forms" and ultimately to the "form of the good" (Cf. *Republic*). In contrast to the realm of the forms the empirical world is chaos, flux, disorder, and with respect to such a world the will is impotent. There is nothing in it really to will. It is as if a walker were to try to navigate on rapidly shifting and upheaving surfaces. Now virtue is knowledge because knowledge refers necessarily to what is real, perfect, good; and because, further, the will is called into being by knowledge. This determination of the will by knowledge is not direct, but involves love as a sort of medium. Plato's doctrine is rounded out by his belief that love refers only to the Good (Cf. the *Symposium*). Love needs not commands, but only knowledge. Moral law is thus superfluous, but so, then, is moral freedom given up. Knowledge determines the will (through love): hence virtue is knowledge: the relations knowledge-love-will are inevitable, necessary: no man *can* will evil.

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Man escapes the turmoil and confinement of his empirical surroundings and dwells with the eternal, but, as I think, at something of a cost. The escape from limitation, the freedom gained, sacrifices moral freedom; for moral freedom consists in the capacity to do wrong instead of right. On the Platonic basis moral responsibility is meaningless. Yet our actual life is based upon man's moral responsibility: our moral criticism of conduct implies moral freedom, moral law, the actual doing of right, the actual doing of wrong.

The Absolutistic motives, found in Plato, are also in Spinoza. Spinoza's absorbed concern (shown in his life as well as in his work) is with the problem of how man can escape the disturbing consequences of being a finite being among other finite things. How can man escape dependence? Certainly Spinoza felt as strongly as any man that repugnance of reason at being a controlled being, at being a creature limited in space and time by other creatures. How can man reach that dignity demanded by reason and possible only by association with things eternal?

Spinoza explicitly denies moral freedom: man thinks he is possessed of it only because he is conscious of his volitions without being aware of their causes (*Ethics,* Pt. II, Prop. 48: Pt. I, Appendix). In fact all things come necessarily from God (Pt. I, Prop. 16). What then is action, if it is not choice; and what are power, freedom from limitation? And how can man attain to power, to freedom from limitation? (I should think it plain that Spinoza is urging upon man the bettering of his condition by increase of his power, and that to urge an end upon man is to suppose him free to go after the end or to refrain from it.) In the first place action, according to Spinoza, is intellectual. "Will and intellect are one and the same thing" (Pt. 2, Prop. 49, Corollary). The activity of the will lies in the affirmation or negation which an idea involves (Pt. 2, Prop. 49). We have this activity, however, only when the ideas are adequate and true (Pt. 3, Prop. 3: Pt. 5, Prop. 6: Pt. 2, Prop. 34). Spinoza thus agrees with Plato that man really acts only when he truly knows. From this knowledge, which is knowledge under the species of eternity, "arises necessarily the intellectual love of God" (Pt. 5, Prop. 32, Collorary). And this love "is part of the infinite love with which God loves himself" (Pt. 5, Prop. 36). Truly to know, really to act, is to assent to God's acts, is to participate in God's freedom. Man's power, his escape from limitation, is gained only by considering him under the species of God. And we have really learned only what that power and absence of limitation is which Spinoza supposed proper to an independent substance.

This system, like that of Plato, is an intellectualistic determinism: "real action" is true knowledge. As deterministic, it is of no value

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for moral theory. Nor does it solve the problem of power; for the so-called power is really God's, not man's. This is shown in the details above; but it follows from the very conception of God that God is the only truly "acting" being. To give an account of human power we must presuppose that man has acts that are really his own; i.e., we must presuppose moral freedom.

On the one side, power explained in terms of moral freedom and opportunities or alternatives; on the other, determinism and the lust for absolutism. In Kant's system of ethics the two "motives" (the one may perhaps be called realistic and pluralistic, the other absolutistic and idealistic) are opposed to each other within the system; though Kant's love of law proves too much for his love of morals.

Kant distinguishes two kinds of freedom, negative and positive. *Negative freedom* is the capacity of the will to adopt the moral law as the principle of its action (Kant, "The Analytic of Pure Practical Reason," Abbott, p. 122). This I should call moral freedom: it means that the self is author of acts; that there is a self-imposed moral law; that man is morally obliged to act in accordance with the law. *Positive freedom* is the will as self-legislative (Abbott, p. 122). A being having positive freedom would be above moral obligation and duty (Abbott, p. 121), for the will of such a being acts as a matter of fact by the moral law: it has the calm above the struggles of the empirical world, the dignity and security, for which Plato and Spinoza longed.

Now man, unfortunately, is in the physical world; and since he is a member of the physical world, nature is the author of his acts. In nature there can be no right, no wrong; man as a physical being is not subject to moral criticism. Nor is the free, intelligible, self-legislative being capable of right or wrong; it is not subject to moral criticism but transcends it. Where, then, is morality? Man, though in nature, has this ideal of positive freedom, and sees himself as capable of striking out for it: he becomes conscious of the moral law, realizes that he can determine himself by it, and further that he is morally obliged to do so. This is negative freedom: and by negative freedom man is called upon to win to positive freedom. Since for a being positively free there can be no question of morality, Kant's conception of the "end" of man, like Plato's conception of virtue and Spinoza's conception of power (or virtue, Pt. 4, Definition 8), is amoral.

But does Kant's use of the notion of negative freedom itself yield a defensible account of morality? That it can not may be shown briefly as follows: (1) It is only by virtue of the categorical imperative as determining my will that I am capable of acting at

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all; for if I am determined by any other principle, nature, not I, is the author. (2) Unless the categorical imperative determines my will, my will contradicts itself, and I do not really act. For Kant, for Spinoza, for Plato: either one does not really act, or he acts above moral obligation. For Kant, as for Plato, no man can do wrong willingly; but then, no man can do right. And for Spinoza, no man can really act except under the species of eternity or God (which action is virtue for Spinoza) so that no man can really act except in accordance with virtue.

Kant should have recognized that moral freedom (or what he calls negative freedom), in being the capacity of the will to act by the moral law, is also the capacity of the will to act not in accordance with the moral law.[4] It has been frequently pointed out that Kant was harassed by a psychological hedonism: man is determined either by pleasure (nature) or by the moral law. But moral freedom must mean that man can never be determined by anything external to himself. For Kant, only action in accordance with the moral law is self-determination. But rightly, self-determination is the condition both of action in accordance with and in divergence from moral law.

In Kant, what corresponds to "power" is self-legislation. And, as we have seen, it is not applicable to human beings; nor is it a notion coming under morals.

With this account of Plato, Spinoza, and Kant in mind we may now return to the conception of human power held in this essay. Man, as we saw, is necessarily limited by what are opportunities or alternatives for him. It is the fact of his having opportunities that indicates man's moral freedom: to take away these, as Plato, Spinoza, and Kant have done to show man free from limitation, is to take away moral freedom. And any concept of power not based on moral freedom is empty.

The amoral concept of human power is purely quantitative. It is the number of opportunities an individual has at any given moment plus the number that can be produced through these. To increase one's opportunities is to increase one's power. To learn a foreign language makes alternative what was before not alternative—the reading of books in that language. Moral freedom implies opportunity: human power is opportunity, including the opportunity for opportunities. Man may increase or decrease his power.

[4] Kant is trying to show *how* man can escape determination by nature. He does not brave out the implications of his concept of negative freedom, which include the proposition that man can and must associate himself (in his conduct) with nature, whether he is acting in accordance with or in divergence from moral law. This requires a view (for the presentation of which there is no space in this essay) of natural law different to that ordinarily held.

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Human power is moral when the *best* opportunities are made use of. Generally speaking the best opportunities will be of three sorts: (1) those whose value is purely immediate, (2) those whose value consists in the number of opportunities they produce, (3) and those whose value lies in making alternative remote and greater values.

The only concept of *absolute* power consistent with moral freedom would seem to be that applicable to a being whose alternatives are at any moment infinite. Leibnitz's God, for example, might be considered such a being; and would, as having moral freedom, be subject to moral law and be obliged to perform the best alternative act. Leibnitz's God is required by moral law to create the best of all possible worlds.[5]

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THE PROBLEM OF GRAVITATION IN ARISTOTLE AND THE NEW PHYSICS

TO attempt to draw a parallel between Aristotle and modern physics is a difficult task. For not only are their viewpoints so widely separated historically as to make any resemblance seem accidental, but the general opinion amongst both scientists and philosophers is that Aristotle was a quite "impossible" physicist. Of the two difficulties the latter is much less of a deterrent than the former. In fact I feel impelled to rescue the great philosopher, not only from the above accusation, but also from the general disrepute into which he has fallen in modern times. Students of the sciences are reared to believe that all of Aristotle's "guesses" were wrong, and that accordingly modern science owes little or nothing to him. How could they be anything other than wrong, they ask, when both his assumptions and his methods were false? I am persuaded, however, that they are as extreme in their contempt as the Scholastics were in their dogged adherence to the Master. The pendulum has swung too far in the other direction.

It is said that very few really understand the theory of relativity. This is due in part to the fact that its most accurate expression is mathematical. Most of us all too quickly become lost in the mazes of mathematical symbolism. The theory, however, is physical, for it deals with and attempts to explain certain physical phenomena, and among them gravitation. The Newtonian physi-

[5] Leibnitz's God is the only sort to which our notion of power might be properly applied. Spinoza's definition of freedom (Pt. 1, def. 7) is, curiously enough, substantially the same as Kant's definition of positive freedom; but it seems hardly correct to attribute power to a being whose "acts" itself could in no wise have made different.

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cists contend that the explanation of gravitation is the force of attraction. But, though they formulate a law of its action—the law of universal gravitation,—they do not explain either the nature of the force or its mode of acting. The modern physicists, accordingly, abandon the notion of a force of attraction. If the Newtonian were asked why bodies unaffected by forces of attraction move in straight lines his reply would be that it is the natural tendency of a body to move uniformly in a straight line. Hence a body in which motion has been initiated by some force will, when left to its own devices, move and continue to move uniformly in a straight line. It is only when the body is not left to its own devices that it moves in accordance with some other type of movement. Accordingly these other types of motion are in a sense unnatural—in the sense that they are not in accordance with the natural tendency of a body. But the modern physicist raises the question as to why one type of motion is regarded as more natural, i.e., more in accordance with the natural tendency of a body, than another. The continuously acting forces of attraction which are supposed to account for these "unnatural" motions are, he contends, unnecessary assumptions. Let us rather begin, he says in effect, with the assumption that the one type of motion is as natural as the other and that there is no more reason for explaining the one in terms of a force than the other. For bodies tend to be moved along the line of least resistance—the line of least action—and each of the above types of motion is, in its "proper" field, motion along the line of least resistance. When one body comes into the field of another it acts differently from the way in which it had been acting before. But in this different field—for the space-time coördinates thereof differ markedly from those of the field from which it came—its motion, if untampered with, is just as natural and as free from the influence of a gravitational force as it was in the field from which it came. We call its motion gravitational, but it is still motion along the line of least resistance.

The new theory of gravitation is not in essence a causal theory. Rather it contents itself with the establishment of a new law of behavior. For the line of least action is the pathway of the greatest "proper" time. But why the pathway of the greatest "proper" time is definitive of the line of least action and why bodies should tend to move along the line of least action, it does not attempt to answer. Nor does it attempt to answer the question of the generation of motion in general, i.e., its generation from a state of being at rest. Perhaps, however, the fact that it contents itself with the establishment of a new law of behavior is an element of strength rather than of weakness. Science is moving away from causal explanation.

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Now Aristotle denied the Platonic theory of the attraction of like to like.[1] "If," says Aristotle, "the earth were removed to where the moon now is, the various fragments of earth would each move not towards it, but towards the place in which it now is."[2] We shall study Aristotle's position at more length presently, but it is clear from the above illustration that the Aristotelian theory of gravitation is not that of attraction of like to like. For the attraction theory would hold that place had no significance whatsoever and that in the instance given the pieces of earth would "gravitate" toward the earth in its new position. But the Newtonian concept of action at a distance is the lineal descendant of the Platonic theory of the attraction of like to like, even though, in accordance with the Newtonian theory, the bodies that act upon one another at a distance need resemble one another only in the possession of mass. And I hope to show that in his hostility to the Platonic point of view Aristotle approaches the viewpoint of the new physics. On the face of it, doubtless it seems absurd to draw a parallel between Aristotle and modern physics. Obviously he finds no place in the modern experimental tradition. Now and again, however, we find that reason anticipates the results of experiment in startling fashion. Nor is this so peculiar for experiment is founded on reason. Great theories are a product of imaginative insight as well as of experiment.

If you were to ask Aristotle why a piece of earth falls to the ground, why the stone on the mountain top tumbles down the hill when it has been loosened, he would reply that it falls because its proper place is below the place in which it happens at the moment to be. Similarly, if you were to ask him why the flames from the wood burning on your hearthside shot upward he would reply that it does so because its proper place is above the region in which it now happens to be. Now according to Aristotle, there are four known elements, earth, fire, air, and water, each of which possesses a proper place.[3] The place of earth is at the center of the universe. Above—i.e., in the direction of the outermost extremities of the universe—and surrounding the region of earth at the center of the universe is the region of water. Is it not true that the "waters" normally rest on the earth? Again, above and surrounding the region of water is the region of air. Air normally occupies a region

[1] I am indebted to Duhem for this contrast and for the notion that the Newtonian theory is the lineal descendant of the Platonic. See P. M. M. Duhem, *Le Système du Monde*, Vol. I, chap. 4, sec. XII, p. 210.

[2] *De Coelo*, IV, chap. 3, 310a31–310b5.

[3] Aristotle postulates a fifth element, arguing that the natural motion of stars and planets is circular and that accordingly, inasmuch as the natural motions of the four known elements are rectilinear, none of the known elements can enter into their composition. Cp. *De Coelo*, I, chap. 2.

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above the regions of both earth and water. True, air frequently touches earth. But the phenomena of rain and streams show that whenever water is present it tends to occupy a place between the two. Finally, above and surrounding the region of air is the region of fire.[4]

Now a peculiar thing about flame shooting upward and stones and earth falling downward, in fact all movements of the four elements from places other than their own to or in the direction of their proper places, is the fact that all such movements seem to take place as it were spontaneously. At all events they stand opposed to movements in an opposite direction, i.e., to or in the direction of a place not their own or further from their own than the place of origin, in that the elements seem to respond readily to the one type of motion and with difficulty to the other. Accordingly Aristotle labels the movements away from an element's proper place, movements by force, the imputation being that the movements toward an element's proper place take place without force, though, in point of terminology, the contrast is drawn between movements in accordance with nature, natural movements, and movements contrary to nature.[5] Force generally implies resistance. The reason why force is necessary in the case of the movements of an element away from its proper place and not necessary in the case of movements toward an element's proper place is that in the former case resistance is present in the element and in the latter case it is not. And the reason why resistance is lacking in the latter case is that the element possesses a natural tendency to be in its proper place and accordingly a natural tendency to be moved there when not there actually. And this tendency is a power. How else can we explain the fact that it requires an obstruction to hold an element in some other than its own place, but none at all to hold it in its own place? How else can we explain the fact that immediately after the removal of the obstruction—or, in instances where one element comes to be from another, immediately after the completion of the becoming—and without any obvious impulsion, the element moves homeward? Again the tendency to be in its proper place is naught but the element's natural tendency to complete its own being. Fire is characterized by lightness, earth by heaviness, air by a sort of heavy-lightness, water by a sort of light-heaviness. Aristotle regards these qualities as ultimate, i.e., as irreducible to one another[6] (for the heavy-lightness of air is distinguishable qualitatively from

[4] The above is contained principally in *De Coelo* IV, chap. 4.

[5] For contrast between movements according to nature and movements contrary to nature see *Phys.* VIII, chap 4 and *De Coelo* I, chap. 2. Compound bodies behave after the fashion of their predominant element. Cp. *De Coelo* I, chap. 2, 268b30–269a2.

[6] Cp. *De Coelo* IV, chap. 4, 311a16–19.

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the light-heaviness of water, the lightness of fire, and the heaviness of earth, and similarly, the light-heaviness of water is distinguishable qualitatively from the heavy-lightness of air, the lightness of fire, and the heaviness of earth) or to anything else, though now and again he defines them kinetically.[7] But fire is not completely light, or in the Aristotelian phraseology it is not actually but only potentially light, and hence not completely fire, until it is in its proper place. Again earth is not completely heavy, and hence not completely earth, until it is in the proper place of earth. Nor is air completely light and heavy in that sense of heavy-lightness characteristic of it, and hence not completely air, nor water completely heavy and light in that sense of light-heaviness characteristic of it, and hence not completely water until they are in their proper places.[8] The natural movement of an element, then, is the result of its natural tendency to complete its own being. All nature, organic and inorganic, is striving to realise the sum of its potencies.

But whilst the striving of the organic world may be termed a self-striving, that of the inorganic world may not. For the natural movements of the elements are not self-produced.[9] What then is the active cause thereof? Are they spontaneous? By spontaneity Aristotle means the being produced by an accidental cause and not the coming to be without cause. Natural motions, however, can not be accidental, by reason of their invariability. That which under certain conditions invariably follows can not be due to an accidental cause. Now it is quite obvious to Aristotle that one of the causes of an element's natural motion is its nature, or rather that power, which an element possesses by virtue of its nature, to complete its being at the earliest opportunity when in an unnatural position and accordingly only potentially realized. This cause, however, is not an efficient cause, i.e., a cause whence the beginning of motion, to use the Aristotelian phraseology. It is rather an instance of the general tendency of all natural objects to complete their being when the proper stimulus presents itself. The stimulus, in the case of the material elements, earth, air, fire, and water, must arise from without. For, as we said above, he does not regard them as being self-moved.

According to one theory, the stimulus to the natural motions of the elements is furnished by the one who removes the impediment therefrom. The one who removes the impediment from an elemental body, however, does not act directly upon the elemental body, but rather upon the impediment. For the immediate result of its action is the removal of the impediment and not the motion of the body.

[7] Cp. *De Coelo* IV, chap. 4, 311b14–16.
[8] *Phys.* VIII, chap. 4, 255b11–21; *De Coelo* IV, chap. 3, 311a1–5.
[9] Cp. *Phys.* VIII, chap. 4, 255a5–11.

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Nor does the impediment appear to act upon the body save to impede it. There is a force exerted upon the impediment, by the one who removes the impediment, but no positive force is exerted by the impediment upon the body.

It is with this difficulty in mind that Aristotle asserts that he who removes the impediment is, on the one hand, as he who causes the body to move and, on the other, as he who does not and compares the action upon the body of the one who removes the impediment to the action of the wall in the instance of a rebounding ball.[10] It is to be remembered, however, that our accepted ideas of cause and causal action, based as they are on the doctrine of force, are dependent upon the notion of inertia. Things resist change of state, a thing at rest resists being moved. But where there is no inertia to be overcome as in the case of a natural object when that natural object is in some other than its own place, why should a force be necessary to start the change?

Aristotle, however, presents an alternative. Possibly that which initiates the motion is "that which in the beginning made the body heavy or light,"[11] for there are the instances to be explained where one element comes to be from another element and forthwith changes its place. The difficulty with this latter cause lies in the fact that both its identity and its mode of procedure are obscure. There is some evidence for supposing that he regards the eternal motions of the stars and planets as the cause or causes of the change from one element to another and, inasmuch as he is wont to regard the natural motions as the culminations of such processes of becoming,[12] it would seem to follow that these motions are the cause likewise of the place movements which complete such changes. But the manner of their "influence" remains a mystery.

It would seem obvious that in any case, whether the element is just now coming to be or is in its unnatural position by virtue of an impediment, Aristotle regards the real power of moving as coming from within the element. The power which accounts for the manner of an element's motion is partially at least responsible for its inception. The element, when in an unnatural position, is like a coiled spring which awaits only the cutting of the cord to spring

[10] *Phys.* VIII, chap. 4, 255b24–29 and *De Coelo* IV, chap. 3, 311a10. While the rôle of the force which removes the obstacle is not precisely perhaps the same as that of the wall in the instance of the rebounding ball, Aristotle's argument is that the one has just as much, or just as little, real causal efficacy as the other.

[11] *De Coelo* IV, chap. 3, 310a32, 311a10; *Phys.* VIII, chap. 4, 256a1.

[12] The view that they are culminations of a process of becoming comes out most strongly in *De Coelo* IV, chap. 3, 311a1–5. The instance in which, as he expresses it, the element "is already fire or earth," but is hampered from moving by an obstacle, is but a special case of the other. Cp. *De Coelo,* IV, chap. 3, 311a6–8.

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outward. There is this difference, however, that whereas the "potential energy" of the spring is the result of work done upon the spring, the "power" of the element is something far more indigenous. It is an energy of position which springs from or rather is the energy of incomplete being or essential nature in its progress toward completed being. And Simplicius' interpretation of "that which made them heavy or light" confirms the above description. According to Simplicius[13] "that which in the beginning made them heavy or light" moves them in the sense that in making them heavy or light it specifically makes them to occupy certain places, "even as the one who makes a jar makes it to receive wine." Its efficacy, then, consists in giving them the power to be in certain places; a power, however, which it bestows upon them by giving them a being or nature, an essential attribute of which is the being in a certain place.

Baeumker[14] contends that it is the principle of necessity which is responsible for the natural motions, and cites a passage from the *Physics* in support of his contention.[15] Now the principle of necessity herein described is the principle of mechanical necessity which Aristotle in a subsequent passage expressly denies applicability to the realm of Nature and natural activities.[16] Nature's activities are teleological, her motions always for the sake of something and I think it is clear from what has been said above that he regards the natural motions of the elements as no exception to this rule. Whatever necessity is present is a necessity of means to end. The principle of necessity as it applies to Nature may be described after this fashion: If this is to be, then this *must* proceed. But the principle of mechanical necessity is rather: If this proceeds, then this *must* follow. As regards the passage cited by Baeumker, the fact that Aristotle regards raining as not for the sake of the nourishing of plants, is no proof that he regards it as a mere product of mechanical necessity. The efficient cause of the motion is indeed mechanical in its activity, but the motion is not without its end or goal, and in part at all events is produced thereby. Furthermore the principle of mechanical necessity is not a cause, but the statement of a certain relation between cause and effect. Accordingly, I am unwilling to take Baeumker's contention seriously, despite the passage quoted.

[13] *Commentaria in Aristotelem Graeca*, Vol. X, p. 1220.

[14] *Problem der Materie in der griechischen Philosophie* by Clemens Baeumker, pp. 271–281.

[15] "What then is to prevent nature from acting without purpose, even as Zeus produces rain not in order that he may cause the grain to increase but from necessity? For that which is raised up must needs be cooled and that which is cooled and become water must needs descend. But the increasing of the grain when this takes place simply happens and is not intended." *Phys.* II, chap. 8, 198b16–21. See Baeumker, pp. 275–276.

[16] *Phys.* II, chap. 8, 198b34–199a20.

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We are prepared, I think, to distinguish between Aristotle's theory of gravitation and that of the new physics. According to Aristotle, earth, air, and water, when they are respectively above certain positions which he designates their normal positions, fall—i.e., move downwards or in a straight line toward the center of the universe—until they reach their "normal" positions. The causal factors in each case are (1) the nature of the element, its being in some sense heavy, and the power of that nature to be realized, and (2) the action of a stimulus or initiating cause—that which starts the process of realization for which they are as it were previously "set." According to the new physics, falling is a much more general thing signifying simply the behavior of any and all bodies which come within the earth's field, when unhampered by external forces. The explanatory factors are the nature of body and the nature of the space-time continuum surrounding the earth. For it is the nature of a body to follow the line of least action, falling being a body's line of least action when it is within the earth's field. And it is the nature of the space-time continuum surrounding the earth that determines the body's line of least action.

But the new theory of gravitation is still wider in scope, for it applies to not only the movements of bodies within the earth's field, but also to the movements of stars and planets and in fact to all unhampered movements. And it is likewise apparent that the new physics contents itself with a behavioristic explanation, preferring this in the present state of our knowledge to a causal explanation.

In conclusion, I believe that my analysis of the Aristotelian position has demonstrated that, in his hostility to the Platonic conception of gravitation as the attraction of like to like, Aristotle approaches the modern conception. For the notion of a force of attraction acting at a distance, which we held to be the lineal descendant of the Platonic theory of the attraction of like to like, finds no expression in his system. On the contrary he looks to place and the nature of the body moved to explain gravitational motions. But then so too in their way do the moderns.

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BOOK REVIEWS

Truth and the Faith. HARTLEY BURR ALEXANDER. New York: Henry Holt and Company. 1929. 313 pp.

"Somewhere in the midst of this fighting Physis, this Nature which agglomerates within itself concord and dissidence, form and matter, cosmos and chaos, each relentless,—somewhere within it or above it, there is an Ordering Thing, or Power, or Force, or God

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(many are its names) that uplifts structure against ruin and pairs death with resurrection, and as often as worlds are swallowed into the belly of Gloom again it calls and commands their regurgitation."

Such (p. 269) is Professor Alexander's thesis. And the method of his exposition is an appreciative commentary on the history of men's religious aspirations, with particular attention to the great achievements of Christendom. *Truth and the Faith* is not so much a book to be criticised as a personality to be enjoyed. It is a personality rich in its appropriation of human culture and sensitive in its insight into the glories to which at moments that culture has risen. One chapter unfolds what the figure of Jesus may mean to an idealist of our modern age; another records what St. Paul and the apocalyptic vision and the idea of an incarnate Logos contribute to an idea of the Christ; another unfolds what vital meanings may be won from a study of the facts of the Church temporal and spiritual, militant and triumphant; still another points out the values that were manifested in turn by such movements as the reformation and counter-reformation, humanitarianism and evangelism, puritanism and quietism; and a last chapter upholds the validity of a religious attitude against the "idols of modernity," that is, against the "reduction-fallacies" that spring from an unwarranted use of the results of the natural sciences. And through these five chapters that deal with successive phases of Christian history, Professor Alexander introduces a host of allusions to primitive worship and Ikhnaton and Buddhism and Norse mythology and Confucianism and Mayan ritual and other cultural traditions with which he is competently familiar. A sympathetic reader of these chapters can hardly doubt that Professor Alexander has justified his contention that "religions are the gauges of men's understandings of life" (p. 267).

The remaining chapters of *Truth and the Faith* provide a frame of idealistic metaphysics for Professor Alexander's interpretation of religious history. This frame is certainly not necessary in order to justify the chief portion of the book. It will even seem unfortunate to some critics, as indeed it happens to seem to me. One can effectively discover what values have been cherished and may legitimately be cherished by men, one can effectively discover what meanings natural facts come to have when they play a rôle in the life of the spirit,—one can do this and do it both effectively and honestly without going on to say seriously and literally that values are alone ultimately real or that the universe is a spiritual life. I find no warrant for holding that "our perceptions are but passing materializations of our beliefs" (p. 8)—(indeed this is as flagrant an instance of the fallacy of reduction as to say that ideals are "but"

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biological adjustments!)—or that "imaginative understanding . . . creates a world which is cosmic according to its own laws" (p. 36). In saying that I find no warrant for holding such doctrines, I do not of course mean that I have refuted them. Such doctrines must be debated, and their debate is important and legitimate. What I mean is rather that such doctrines do not reinforce, and that such doctrines seem in some quarters to imperil, the contention that human history contains much to justify and beautify the spiritual life.

For is it not philosophically dangerous to confuse raw material and finished product? That is what some idealists seem to me to do, and thereby to make even the moral element in their idealism suspect. Professor Alexander remarks (p. 269) that " every *last* word is an image." He is speaking, not slang, but metaphysics. He means that the word which at *last* we are driven to use in our effort to tell about our world is but a symbol or sign of a spiritual process. Now it may quickly be granted that all language is in a sense metaphorical; for no word is identical with what it means. But spiritual process is what at times, here and there, under favorable circumstances, may occur in our world; it is not the stuff of the world nor the cause that eventuates in such glorious outcome. To borrow the language of Aristotle's metaphysics, Professor Alexander seems to me to have confused final cause with both material cause and efficient cause. And I have found that such philosophy is only too prone among many people to make moral idealism and religious aspiration seem a bit "fishy." Morals and religion are more secure when they rest, as in St. Thomas Aquinas, on a realistic metaphysics.

But my intent is to praise, not to criticise adversely, Professor Alexander's book. He has not here argued his idealistic metaphysics (as he has done elsewhere), but has only employed results he thinks he has formerly established. It is the treatment of the religious thread in human culture that is the theme and the merit of the present book. And on this ground the book achieves a high excellence. Especially at the present time, when in this country certain self-baptized "humanists" spend considerable energy in caustically slurring what does not bear the trade-mark or employ the typical pet phrases of their own small party, it is a relief to find a book that deals appreciatively with varied human faiths. Instead of isolating what in religious history is sordid or weak and using that as a target for petty criticisms, Professor Alexander selects nuggets of pure gold and builds up a fair temple in which to center the human effort to live the spiritual life.

AMHERST COLLEGE. STERLING P. LAMPRECHT.

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Comte. G. CANTECOR. Paris: Librairie Mellottée. 1930. Pp. 174.

Of the large number of books which might have been written under the above title, M. Cantecor is hardly to be blamed for having written only one. At the same time in a book written for such a series as *Les Philosophes,* one might have expected an introductory account of Comte's life and general ideas. Instead we have an elaborated second edition of an earlier work under another title, dealing with what the author calls Comtism as distinct from Positivism. His publishers, with that blind enthusiasm which seems to characterize the members of their calling the world over, have tagged the volume with a violent purple band reading: *"Enfin: Tout la Vérité sur le Fondateur du Positivisme."* Of course M. Cantecor would be the first to protest that his modest and scholarly effort contains nothing of the kind.

Far from being a scandalous chronicle of Comte's personal affairs, the book dismisses his chequered life with a scant three-page obituary, and then goes on to give an admirably compact summary and criticism of his chief ideas. This is divided into two parts, the first devoted to Comte's intentions (his work, as the author well says, *"n'est, en quelque façon, qu'une vaste programme"*) ; while the second deals briefly with the resulting doctrines of Comtism. The author's first care is to distinguish the latter from Positivism, which is to him a much wider affair, primarily a method of scientific observation and reflection plus the denial of metaphysics. But since it is in Comte that we find the positive method "at one and the same time raised to its climax and falsified," it is the story of that familiar paradox (the *Cours* versus the *Politique*) which the author proposes to retell.

Such originality as he displays in retelling it flows largely from his insistence, as against Professor Levy-Brühl, for example, upon the essentially social and political nature of Comte's entire philosophical program. Instead of regarding the later works as mere aberrant addenda to the rationalistic scientism of the *Cours,* M. Cantecor depicts the latter as hardly more than preparatory to the former. "The real Comte is in the *Système de Politique* and only there" (p. 59). In taking this position he joins the inceasing number of critics who, while they personally esteem the *Cours* far above the *Politique,* regarding the latter as wholly unsuccessful and even in a sense ridiculous, refuse for that reason to blind themselves to Comte's own view of the matter. That Comte, following his master Saint-Simon, sought from the very beginning a reorganization of society upon a new intellectual basis, a scientific politics, no one any longer seriously disputes. But thanks to such circumstances as the peculiarities of his personal character, the break with Saint-Simon,

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the success of the *Cours,* and above all the ill-starred platonic passion for Mme. Clotilde de Vaux, this life-long quest for the basis of a new social order led him far, far afield. Comte, as the author admits, was a singularly unoriginal but persistent theorist with broadly practical aims, and almost no competence in practical affairs. His career had a certain unity of systematic form (far less than he supposed it had, of course), combined with an amazing variety and incoherence of mood and detail.

Comte's leading ideas, in other words, varied less than his practical attitudes toward them,—now coldly scientific, now eagerly political, now passionately religious. It is thus extremely difficult to do justice both to the man and to his system, both to the diversity of his moods and the alleged unity of his doctrines. M. Cantecor, desiring chiefly to prove a thesis about the latter, rather overdoes the unity at the expense of the variety. The man, Augustus Comte, is not in his book; instead we find a Comtism pruned of its native extravagances, filled out by copious reading between the lines, and organized as its creator neglected to organize it. In a dissertation primarily addressed to scholars such a placing of emphasis would be wholly legitimate, but in a popular introduction to Comte its appropriateness is open to question. Certainly the author's readers will have a hard time discovering in Comte's life and writings the well-ordered progression of themes with which they have become acquainted in this book.

The method does afford us, however, a notably clear account of the many stages through which Comte passed on his way from the study of mathematics to the high-priesthood of Humanity. At first, not suspecting that what he needed was a philosophy, even of science, Comte like his master Saint-Simon sought a social physics; then in science itself some sort of supporting philosophy; then a philosophy to organize the sciences; and then an ethics to weld together the intellectual, the emotional, and the political in a triple discipline or *technique de vivre.* M. Cantecor holds that this almost unconscious veering towards the construction of a speculative philosophy for practical purposes was a logical development from Comte's original premises. What was psychological (and utterly destructive of the positive method) was the choice of its dominating principle, namely, feeling, which was due to "very personal reasons" on Comte's part, and which inevitably transformed his ethics (unhappily while still in embryo) into a religion.

The author makes the interesting suggestion that perhaps this need not have happened. "Comte might very well have based his triple discipline of life upon a general theory of humanity, envisaging its nature, its development, its place in the world and its relationship to its component individuals, without erecting it into a

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mystical object of worship or consecrating a cult to it" (p. 73). This raises afresh the still vexing problem of a basis for an ethics of altruism without supernatural sanctions. It is significant that Comte's highest moral good, an order in which each individual lives for Humanity, is apparently founded upon a knowledge of order in Nature, a position markedly reminiscent of Stoicism. Certainly, as the author remarks, this is "profoundly rationalistic in its inspiration, and is another of the instances where the character of the philosopher prevailed over his principles" (p. 134).

Comte's ethics having succumbed to his supposed need of a religion, the author finds no incompatibility between Positivism and religion, only between Positivism and theology. Positivist religion has no room for faith; it is the one *religion demontrée.* If Comte made of it an absurd cult, it is not because it is a cult that it is absurd. For the general notion of a religion based upon science the author has great respect. We are evidently, one might add, even today only at the beginning of just such attempts to attach religious motive-powers to allegedly scientific ethical precepts; and a generation which listens to the preachments of Eddington and Millikan, to say nothing of the less able pastors of the laboratory, has little right to patronize the piety of Comte. Only the latter's labored attempts at revamping ancient religious practices may legitimately amuse us. Perhaps the worst we can say of Comte's religion, ventures M. Cantecor, is that it failed. But the success of something remotely like it, purged of Comte's tyrannical dictatorship and nonsensical pseudo-Catholicism, is, in the course of time, perhaps not inconceivable.

In a brief concluding chapter the origins of Positivism are separately traced, the former to Bacon, Montesquieu, Condorcet, and Herder (together with a host of scientists); while the latter is with justice almost wholly attributed to Saint-Simon (although his numerous precursors are entirely ignored). The author even goes so far as to say that "on the whole Auguste Comte did hardly more than re-live, in its diverse phases, the intellectual and moral life of Henri de Saint-Simon" (p. 162). What Comte added was mainly an amplitude of scientific knowledge and a dogged persistence in the elaboration of his master's ideas. All his life he lived on legacies, intellectual and financial.

As for the disputed extent of Comte's influence, the author notes the sterility of the orthodox Positivists the world over, and has little praise even for such dissident revisers of Comtism as Littré and John Stuart Mill. He refuses to countenance the claim of diffuse influence by assimilating to Comte all the bearings of science upon modern life. His final verdict, finding Comtism "only one episode, among many others, in the development of the positive spirit" is a

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harsh one. "To tell the truth," he adds, "the work of this incomplete genius has ceased to interest even the critic: henceforth it belongs only to history" (p. 170). The reasons? Comte's lack of the self-critical spirit, his proud isolation, his boasted ignorance of his contemporaries, to say nothing of his dogmatic haste to apply answers even before the questions themselves were clearly understood,—all these account for his failure to achieve that direct influence which he so dearly coveted over his fellow men. At the same time the author admits that Comtism holds no little fascination for the contemporary historian as "the first effort, no matter how imperfect, to base upon science a doctrine of life."

The book contains an excellent Table of References designed to indicate the scattered passages where the principal theses of Comte's "explicit philosophy" are to be found. The *Memento Bibliographique* is mysteriously brief and deficient in recent contributions. All the books dated were published before 1904.

HAROLD A. LARRABEE.

UNION COLLEGE.

The Ethical Basis of Political Authority. WESTEL W. WILLOUGHBY. New York: The Macmillan Company. 1930. Pp. viii + 460.

"To examine political authority as it is viewed by the moralist," is Professor Willoughby's purpose in the present volume. In the preface, we are promised that the inquiry will be "teleological, the purpose being the establishment of the ethical rightfulness of political authority as determined by the results which are, or may be, obtained by its exercise." Other centuries might have found nothing surprising in such an announcement, but in our own day, coming from so distinguished a scholar of law and government, it carries a pleasant suggestion of novelty. With the present increasing interest in theoretical issues among American political scientists, however, it seems not improbable that such novelty will be short-lived.

Six years ago, in his *Fundamental Concepts of Public Law*, the author distinguished the two main areas in the domain of political theory as: (1) one in which inquiries are wholly juristic, the State being regarded as the creator and enforcer of positive law; (2) one in which inquiries are ethical, dealing with the authority of the State from the point of view of the moral purposes for the realisation of which it exists. The earlier work dealt with inquiries of the first type; the present deals with those of the second. In the latter, we are told in the opening chapter that "Political inquiries become philosophical when they seek to determine the essential qualities of political life." In final purpose, ethics and politics agree, since "the ultimate aim which should be sought by all political powers is that, through their influence, and assisted by the environment

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which they create, the highest possible moral life may be lived" (p. 6). Only through the instruments which they employ do ethics and politics differ, the one appealing directly to conscience and reason; the other establishing institutions and maintaining order and justice with the aim of rendering the ethical appeal effective. Criticism of political philosophy has usually been founded on the mistaken belief that it attempts to formulate canons of conduct for the unerring guidance of the practical statesman. Such guidance as he may hope for must come from the careful study of various political phenomena, which he may come by through experience. Nevertheless, thinks Professor Willoughby, it is possible for philosophy to deduce "from the essential needs and ends of men as rational moral beings, ideal systems of social and political life." But let not *ideals* be confused with *utopias*. The latter are artificial mechanisms, devised by the imagination without reference to actual conditions. *Ideals,* on the other hand, suggest patterns of action, applicable within specific situations, for the realisation of rational ends.

There are two parts to the book. The first, in length perhaps five times that of the second, is devoted to consideration of ethical theories of political authority. In their significant major lines, the attitudes of the classical philosophers are offered. But in addition to Plato, Aristotle, Hobbes, Spinoza, Locke, Rousseau, Kant, Hegel, Green, and some others of less importance, there are added discussions of Fascism and "philosophical anarchy." The exposition is uniformly clear and interesting, significant points being chosen for emphasis with extraordinary skill,—qualities which should render the book especially useful as a text. Nowhere does the exposition seem more satisfactory than in chapters dealing with the *contract theory;* and perhaps it is nowhere weaker than in the all too brief considerations accorded Plato and Aristotle.

The second part of the book is devoted to *ethico-juristic theories,* —which, "while laying claim to lie within the field of juristic speculation . . . are, in reality, ethical theories." Three chapters follow the introductory discussion: one, and perhaps the most interesting, dealing with the theories of Duguit; a second, with the theories of Krabbe; a third, with *political pluralism,* in which Figgis Laski, Cole, Sabine, Miss Follett, and the Syndicalists are considered. Nowhere is the author's skill as a critic displayed to greater advantage than in the treatment of Duguit and Krabbe. Without invective or extended argument of opposition, errors of historical and legal interpretation and internal contradiction are revealed at critical points with a well-directed sentence or brief paragraph.

The point of highest interest is probably reached in chapters XIV to XVI, which treat of: "The True Basis of the Right of Politi-

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cal Coercion" (hazardous title!); "Legitimate Ends of Political Coercion"; "The Legitimate Sphere of Political Authority." The *moral personality* of man is taken as the central concept of modern ethics. "This implies that each individual is able, and in fact, is irresistibly impelled, to formulate for himself an ideal of perfection toward the attainment of which he is conscious of a moral obligation to strive" (p. 242). "The only rights which may be claimed as natural, in the sense of being innate and essential, are those which are necessary for the realization of one's highest ethical self" (pp. 244–245). This "highest ethical self" seems also to be the fully *rational* self,—apparently the two would be the same. Such an ethical, rational self recognises the rights of others like himself, and his consequent obligations in relationships with them, which establishes a bond of social unity on the level of rational morality. The idea of an isolated moral self is therefore an abstraction, and moral philosophy must start with society as a fundamental datum. Since the perfection of the moral self requires favorable conditions, political institutions have as their task, the providing of these conditions. "There is no inherent merit in political coercion which justifies it apart from the results reached by it,"—in the last analysis, apart from the providing of conditions advantageous to the development of the moral life of its citizens. No limit may arbitrarily be set to State action. "The doctrine which has already been established that the State has for its general purpose the promotion of the welfare of its citizens carries with it the corollary that whatever state action will tend to secure this end is ethically justified" (p. 283). The conception of a *Kulturstaat* must replace that of a *Polizeistaat*.

In this general position, the influence especially of Green is evident,—indeed, the writer has found difficulty occasionally (particularly in Chapter XIV) in separating the affirmations of Willoughby from what may have been intended only as exposition of Green. While the position is one with which, on the whole, the philosopher of idealistic tendencies will be most in sympathy, yet many others will find the book of especial value because of the clarity of its exposition.

CLIFFORD BARRETT.
UNIVERSITY OF CALIFORNIA AT LOS ANGELES.

The Melody of Chaos. HOUSTON PETERSON. New York: Longmans, Green and Co. 1931. vii + 280 pp.

A book about Conrad Aiken, poet, but also metaphysician and psychologist, should by rights be something of a psychology and a metaphysics no less than a piece of literary diagnosis. And what by rights it should be, this book of Dr. Peterson's by happy for-

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tune is. Here we have a study of Aiken the man, of Aiken the creative artist; and as spiritual biography it is absorbing, as criticism vivid, and penetrating, and wise. But *The Melody of Chaos*, as the title itself suggests, is perhaps most importantly an analysis of a tendency, of a state of soul, limited to no age and no individual, however characteristic it be of the present era and of the gifted author of *Senlin* and *John Deth* in particular. In expert fashion has been combined a critique of a typical contemporary figure with a critique of a spiritual condition as ancient as the book of Ecclesiastes. From the blend results a fine example of scholarly and imaginative interpretation.

The *motif* of the book as a whole is chaos—chaos intellectual, emotional, and moral, chaos expressed through disillusionment and doubt, through morbidity and unrest, through desperate soul-searching and as desperate ennui. In the opening chapter the stage is set for what is to follow. There we are reminded of the convergent influences accountable for the pervasive *mania psychologica* of which, we are assured, no other writer "exhibits more fully than Aiken the symptoms." "We should find," the chapter concludes, "that his vision of chaos is made both more piquant and more tolerable by his incorrigible melodiousness." In this chapter as in its successors, Aiken's spiritual ancestors and brothers are indicated. Indeed one of the distinctive features of this book is its judicious introduction of a multitude of literary personages. With never an air of pedantry or undue technicality its theme is enriched by comparisons and allusions drawn from the most varied sources—from the domain of fiction, drama, poetry, from contemporary psychology, psychoanalysis, literary criticism, and philosophy, of many ages, of many nations.

Of especial significance to a student of contemporary tendencies will perhaps be the chapters entitled "Vicarious Experience" and "The Enormous Brain" which deal respectively with the sedatives and stimulants to which frustrated and dissatisfied beings have recourse, and with the strange personality of the great modern city. Also of particular interest must inevitably be those chapters concerned with the nature of the self; its multiform character, its ambiguities and vagaries and dissensions.

Constantly departing from the specific analysis of Conrad Aiken and constantly returning, Dr. Peterson builds up a colorful portrait of the man's character and powers. The reader could scarcely escape the conviction that it is an impressive and highly important modern who is here subjected to intensive scrutiny. And the defence of him is eloquent. At the end of the discussion of *The Jig of Forslin* we read, for example: "Such is Aiken's poem of vicarious

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experience. A mighty nightmare. A convincing, familiar dream. A series of grandiose delusions. The tremendous music of frustration. All strangely remote, unstable, swirling, vague—yet factual, circumstantial, familiar.'' Again we read: ''It was inevitable that Aiken, after saturating himself in the Elizabethans, should borrow some of their colors to paint a similar picture. He had some of their mordant wit as well as their morbidness, and he too saw the white worms beneath the boards of the world.'' ''Before aridity had become the fashion in contemporary verse, Aiken had made it his theme,'' we read. And later: ''. . . it is through music alone, probably, that he could pass into mysticism, were he able to escape from that bitter analytic habit which is the eternal obverse of the romantic mind.''

In the concluding chapter, speaking of the values of recollection, the author observes: ''Our minds are pyramids filled with grinning mummies, and that is why the art of forgetting is far more important than the art of remembering. . . . Bergson, Freud and Proust have all been concerned, in their various ways, with the unsounded reservoirs of memory. And Aiken puts its essential horror into song.'' The chapter, and the book, reverts at the close, like well-wrought music, to the theme: Chaos is what we end with as we began. But the argument has served to render us more fully aware that the state is possessed of grandeur as well as of bitterness and negation.

HELEN HUSS PARKHURST.

BARNARD COLLEGE.

Philosophes et Savants français du XXème Siècle...La Sociologie. DANIEL ESSERTIER. Paris: Félix Alcan. 1930. Pp. 450.

This compilation of extracts from the writings of the most important contemporary French sociologists will keenly interest all those in America who are fired with the common ambition of constructing an experimental philosophy. The French use of the term ''sociology'' should not mislead us. If one were asked to sum up in a sentence what the essential difference between sociology in America and sociology on the continent is, the answer would have to be that the difference is one of origin. In our own country the sociologists were mainly recruited from the ranks of the historians, economists, and physical scientists; while in Europe, with few exceptions, they came to sociology from philosophy. The consequences are apparent to-day. The continental sociologist has indeed and forever thrown away that philosophical instrument which he found to be blunted, namely, dialectics, and has resolutely turned his back on the *a priori* method; but he has not, on that account lost

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sight of the fundamental problems, without an awareness of which, erudition may be possible but certainly not science. The same can not be said of our native colleagues. They are either statisticians or Y. M. C. A. secretaries. And those who do not fit into these two categories, like the late Cooley, Professors Ellwood, Ross, Giddings, and MacIver, are decidedly *non grata* in the younger sociological circles.

This book of *Readings in Contemporary French Sociology* should serve a useful purpose, then, in calling attention to the necessity of coördination and synthesis in the social sciences. It should also prove helpful in showing the pitfalls to be avoided, in laying bare the reefs of metaphysical abstractions on which many an "anti-metaphysical" doctrine has foundered. It should infuse courage into the hearts of that Pleiad of young men who, under diverse inspirations, are laboring to make philosophy more scientific and science more philosophical.

M. J. Aronson.

College of the City of New York.

JOURNALS AND NEW BOOKS

The Philosophical Review. Vol. XL, 3. Geraud de Cordemoy, 1600–1684: *Albert G. A. Balz.* Discussions—The Revolt against Dualism: *E. B. McGilvary.* Mr. Whitehead's Philosophy: *M. H. Moore.*

The Monist. Vol. XLI, 2. The Golden Mean: *J. L. Stocks.* Value and Aesthetic Experience: *L. A. Reid.* The "Reality" of the Imaginary: *R. F. A. Hoernlé.* A Preface to Logic (II): *E. O. Sisson.* Logic as the Cross-Classification and Selection of Arbitrary Elements: *F. Creedy.* Discussions—Change: *P. A. Carmichael.* Change *Is* Substance: Reply to Dr. Carmichael: *D. W. Gotshalk.* Reply to Mr. Gotshalk: *P. A. Carmichael.*

Philosophy. The Journal of the British Institute of Philosophical Studies. Vol. VI, No. 22. Purpose in Evolution: *J. Arthur Thomson.* Science, History and Philosophy: *Guido de Ruggiero.* The Errors of Sir Arthur Eddington: *Norman Campbell.* Imagining and Reasoning: *H. W. Carr.* Right and Good: The Limits of Ethics: *W. G. de Burgh.* Hypnotism and Suggestion: *William Brown.* Philosophical Survey: Philosophy in Italy. Philosophy in Russia.

Revue d'Histoire de la Philosophie. 4e Année, 4. Le théorie et la pratique dans la cité platonicienne: *Raymond-Lucien Klee.* L'oisive adolescence de Descartes (II): *G. Cantecor.*

Studies in Philosophical Naturalism. Edited by H. G. Townsend. (University of Oregon Publication, The Humanities Series,

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Vol. I, No. 1.) Introduction. The Nature of Knowledge and the Knowledge of Nature: *H. G. Townsend.* The Romance of Emergence: *C. D. Tenney.* Samuel Alexander's Doctrine of Value as Emergent in Nature: *R. W. Leighton.* The Emergence of Individuality in the Philosophy of Alexander: *Grace Smith.* Naturalism in "Space-Time" and in "Essence": *Bertram Jessup.* The Logical Root of Modern Life: *George Rebec.*

MIND. Vol. XL, No. 158. Le Développement Intellectuel chez les Jeunes Enfants: *Jean Piaget.* An Examination of Bosanquet's Doctrine of Self-transcendence (I): *R. E. Stedman.* The Relations of Mental and Physical Processes: *A. D. Ritchie.* Logical Constructions (I): *John Wisdom.* Discussion—Is Perception Direct, or Representative? *C. A. Strong.*

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE. Band XL, Heft 1. Vorwort des Herausgebers. Geschichte und System der Philosophie: *H. Rickert.* Der pädagogische Gedanke in Platons Höhlengleichnis: *E. Hoffman.* Die "materia primordialis" in der Schule von Chartres: *H. Flatten.* Die kosmische Anthropologie des Bovillus: *B. Groethuysen.* Hegel's Ästhetik als System des Klassizismus: *H. Kuhn.* Kuno Fischer und Karl Rosenkranz: *H. Glockner.* Jahresbericht 1930 über die deutschen Schriften zur Patristik: *A. Dyroff.* Jahresbericht 1930 über die englischen Schriften zur Antike: *G. Dawes Hicks.* Jahresbericht 1930 über die italienischen Schriften zur Antike: *G. Calogero.* Notizen—Paul Hensel zum Gedächtnis: *F. Medicus.* Benno Erdmann in memoriam: *E. Wentscher.*

Granbery, John Cowper: Student's Prolegomena to Philosophy. Ann Arbor: Edwards Brothers, Inc., 1931. vii + 133 pp.

Hack, Roy Kenneth: God in Greek Philosophy to the Time of Socrates. Princeton: Princeton University Press for the University of Cincinnati. 1931. vii + 159 pp. $3.00.

Plekhanov, George: Fundamental Problems of Marxism. Edited by D. Ryazanov. New York: International Publishers. 1931. xiv + 145 pp. $2.00.

Thomas, Wendell: Hinduism Invades America. New York: The Beacon Press. 1930. 300 pp.

Liebert, Arthur: Kants Ethik. (Pan-Bücherei. Gruppe-Philosophie, Number 7.) Berlin: Pan-Verlagsgesellschaft M.B.H. 1931. 56 pp. 2.60 M.

The following two reprints have been received:

Larrabee, Harold A.: George Santayana. American Philosopher? (Reprinted from the April Number of *The Sewanee Review.* 1931.)

Zehnder, Louis: What Conclusions must be drawn by classical physics and chemistry from the principle of greatest simplicity in

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their fundamental ideas? (Translation of an Abstract of the *Zeitschrift für Physik*, 63, 706, 1930. Neuchâtel: James Guinchard. 1930.)

Cuvillier, A.: Manuel de Philosophie. Tome I: Introduction générale. Psychologie. Paris: Armand Colin. 1931. xxxix + 722 pp. 38 fr.

NOTES AND NEWS

We regret to announce the death on April 25 at Chicago of Professor George Herbert Mead of the University of Chicago.

The second International Congress of the History of Science and Technology will be held at the Science Museum, South Kensington, London, June 29 to July 3, 1931.

The Congress originated with the Comité International d'Histoire des Sciences which was founded at Oslo on August 17, 1928. This body meets annually in Paris and organizes every three years a Congress in which persons interested in the History of Science and Technology are invited to take part. For the coming Congress the Comité has enlisted the coöperation of its parent body, the Comité International des Sciences Historiques, together with that of two other international societies, the History of Science Society, Washington, D. C., and the Newcomen Society for the Study of the History of Engineering and Technology, London.

The present Congress will comprise morning sessions for papers and discussions, afternoon visits to places of historical and scientific interest, and evening receptions. It is intended that the papers and discussions will centre around the following three themes: (1) The sciences as an integral part of general historical study; (2) historical and contemporary inter-relationship of the physical and biological sciences; (3) inter-dependence of pure and applied science.

Applications for membership should be sent to the Honorable Secretary at the headquarters of the Congress at the Science Museum, South Kensington, S.W. 7, London.

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THE JOURNAL OF PHILOSOPHY

There is no similar journal in the field of scientific philosophy. It is issued fortnightly and permits the quick publication of short contributions, prompt reviews, and timely discussions. The contents of the last six issues are as follows:

Volume XXVIII. No. 4. February 12, 1931.

Report of the Thirtieth Annual Meeting of the Eastern Division of the American Philosophical Association. ERNEST NAGEL.
Community as the Key to Evolution. H. W. WRIGHT.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 5. February 26, 1931.

Mind in "Process and Reality": CHARLES W. MORRIS.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 6. March 12, 1931.

Report of the California Meeting of the American Philosophical Association. ARTHUR E. MURPHY.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 7. March 26, 1931.

Francis Bacon and Contemporary Philosophical Difficulties. JOHN STORCK.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 8. April 9, 1931.

Kant's Philosophy of Peace and War. A. C. ARMSTRONG.
Immanence-Transcendence. JOHN WRIGHT BUCKHAM.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 9. April 23, 1931.

The Place of Repression in Morality. CONSTANCE RATHBUN.
On Defining "Existence." DURANT DRAKE.
Book Reviews. Journals and New Books. Notes and News.

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American Journal of Psychology.—Ithaca, N. Y.; Cornell University.
Subscription $6.50. 624 pages annually. Edited by M. F. Washburn, K. M. Dollenbach, Madison Bentley, and E. G. Boring.
Quarterly. General and experimental psychology. Founded 1887.

Pedagogical Seminary and Journal of Genetic Psychology.—Worcester, Mass.; Clark University Press.
Subscription $7.00. 600 pages annually. Edited by Carl Murchison and international co-operating board.
Quarterly. Child behavior, differential and genetic psychology. Founded 1891.

Genetic Psychology Monographs.—Worcester, Mass.; Clark University Press.
Subscription $7.00 per volume. Two volumes annually, 600 pages each. Edited by Carl Murchison and an international coöperating board.
Monthly. Each number one complete research. Child behavior, differential and genetic psychology. Founded 1925.

Psychological Review.—Princeton, N. J.; Psychological Review Company.
Subscription $5.50. 480 pages annually.
Bi-monthly. General. Founded 1894. Edited by Howard C. Warren.

Psychological Bulletin.—Princeton, N. J.; Psychological Review Company.
Subscription $6.00. 720 pages annually. Psychological literature.
Monthly. Founded 1904. Edited by Samuel W. Fernberger.

Psychological Monographs.—Princeton, N. J.; Psychological Review Company.
Subscription $6.00 per volume. 500 pages. Founded 1895. Edited by Raymond Dodge.
Published without fixed dates, each issue one or more researches.

Journal of Applied Psychology.—Baltimore; Williams & Wilkins Co.
Subscription $5.00. 400 pages. Founded 1917.
Quarterly. Edited by James P. Porter and William F. Book.

Psychological Index.—Princeton, N. J.; Psychological Review Company.
Subscription $4.00. 300–400 pages. Founded 1895. Edited by W. S. Hunter.
An annual bibliography of psychological literature.

Archives of Psychology.—Columbia University Post Office, New York.
Subscription $6.00. 500 pages per volume. Founded 1906. Edited by R. S. Woodworth.
Published without fixed dates, each number a single experimental study.

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LOGICAL POSITIVISM

A New Movement in European Philosophy

ONE of the most interesting phenomena in recent European philosophy has been the convergence of two significant traditions: the positivistic-empirical and the logical. Comparable in importance with the Kantian synthesis of rationalism and empiricism, this new movement is sharply distinguished from it both by its results and by the fact that it embodies not the work of an individual, but the agreement of numerous logicians, philosophers, and scientists independently arrived at. This is particularly encouraging in a field like philosophy in which anything approaching a general unanimity has seemed hopelessly unattainable.

The essence of this new development is its radically novel interpretation of the nature, scope, and purpose of philosophy—an interpretation gradually achieved through extensive inquiries into the foundations of logic, mathematics, and physics. Its foremost philosophical exponents are R. Carnap (Vienna), H. Reichenbach (Berlin), M. Schlick (Vienna), and L. Wittgenstein (Cambridge, England).[1] It is interesting to note that recent American publications by P. W. Bridgman, Suzanne K. Langer, and C. I. Lewis exhibit related tendencies.[2]

To facilitate criticism and forestall even more unfortunate attempts at labelling this aspect of contemporary European philosophy, we shall employ the term "logical positivism." Although it is per-

[1] The more important works of the authors named are listed here. The new journal *Erkenntnis* (Annalen der Philosophie), Vol. 1, 1930, pp. 311–339, contains a complete bibliography of the movement. R. Carnap: *Der logische Aufbau der Welt*, Benary, Berlin, 1928. *Scheinprobleme in der Philosophie*, Benary, Berlin, 1928. H. Reichenbach: *Philosophie der Raum-Zeit Lehre*, De Gruyter, Berlin, 1928. "Ziele und Wege der physikalischen Erkenntnis," in *Handbuch der Physik*, ed. by Geiger and Scheel, Vol. IV, pp. 1–80, Springer, Berlin, 1929. M. Schlick: *Allgemeine Erkenntnislehre*, 2te Aufl., Springer, Berlin, 1925. "Erleben, Erkennen, Metaphysik," *Kant-studien*, Vol. XXXI, pp. 146–158, 1926. "Die Wende der Philosophie," *Erkenntnis*, Vol. I, pp. 4–11, 1930. *Fragen der Ethik* Springer, Wien, 1930. L. Wittgenstein: *Tractatus Logico-Philosophicus*, Kegan Paul, London, 1922.

[2] P. W. Bridgman: *The Logic of Modern Physics*, Macmillan, New York, 1927. S. K. Langer: *The Practice of Philosophy*, Holt, New York, 1930. C. I. Lewis: *Mind and the World-Order*, Scribner's, New York, 1929.

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haps the best among many poor ones, the name may suggest a mere rephrasing of traditional positivism. However, this is not the case. Indeed, it is precisely the union of empiricism with a sound theory of logic which differentiates logical positivism from the older positivism, empiricism, and pragmatism. The vigorous empirical tradition of Hume, Mill, Comte, and Mach founded its philosophizing upon the principle that all knowledge is based upon experience. But reacting against the poverty of traditional formal logic, these philosophers fell into the error of carrying their empiricism too far. Some, like Mill, sought to treat mathematics and logic as inductively established empirical sciences; others, like certain pragmatists, neglected pure logic entirely by confusing it with psychology and scientific method.

The new logical positivism retains the fundamental principle of empiricism but, profiting by the brilliant work of Poincaré and Einstein in the foundations of physics and Frege and Russell in the foundations of mathematics, feels it has attained in most essentials a unified theory of knowledge in which neither logical nor empirical factors are neglected. From the point of view of logical positivism, the Kantian synthesis concedes too much to rationalism by assuming the existence of synthetic *a priori* truths. Against Kant the new movement maintains as a fundamental thesis that there are no synthetic *a priori* propositions. Basing its assertions upon recent developments in factual and formal sciences, it holds that factual (empirical) propositions though synthetic are *a posteriori,* and that logical and mathematical propositions though *a priori* are analytic.

It is fundamentally this new understanding and use of the analytic character of logic which has made possible the convergence of the empirical and logical traditions. By means of the theory of knowledge thus constructed, logical positivism goes beyond the Comtean and pragmatic rejection of metaphysics as useless or superfluous and shows that the propositions of metaphysics, in most senses of the term, are, strictly speaking, meaningless.

The exposition of logical positivism given here will be necessarily short and dogmatic. Some, but by no means all, of what seem to be the most fundamental issues will be touched. The purpose throughout will be to indicate what types of problems are being investigated and the general character of the results obtained.

I

We turn first to a summary of the recent advances in pure logic which have made this new type of philosophizing possible. With the enormous growth in the flexibility of symbolic logic has come a new insight into the nature of pure logic. The answer to the problem of

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the relations between the logical and the empirical is primarily the contribution of Wittgenstein, building upon Frege, Russell, and Whitehead.[3]

Wittgenstein attacks the purely logical problem of knowing, namely, the analysis of language—where by the term "language" is meant any medium of communicating knowledge, any set of symbols and their syntax or rules of combination. Logic in the wide sense is then shown to be the system of conventions which determine the syntactical order required if we are to have a consistent language.

Thus, though language says something about reality, logic by its very nature has nothing to do with experience, since it concerns the internal structure of language. The so-called theorems of logic are simply rules for tautological transformations, i.e., rules for repeating in whole or in part what has been said in another form. The familiar "laws of thought" (principles of identity, contradiction, excluded middle) constitute as a group the stipulation that the concrete interpretation given to symbols should be definite and unambiguous. The term "identity" has no meaning as applied to reality; only symbols can be identical and these only when they have the same concrete meaning.

Whereas in the Russell-Whitehead system a proposition can be accepted as a part of logic only when it follows by definite rules from a limited set of axioms or postulates, on the Wittgenstein view there is no such difference between axioms and theorems in logic. A proposition is a proposition of logic when it is tautological; its tautological character can be recognized by analyzing it in isolation. Thus the Russell-Whitehead axiomatization of logic is a practical convenience, but not essential to logic. For in logic, in contradistinction to geometry, there is no first and last; all propositions of logic are on the same plane.

The view that the propositions of logic are tautologies is based upon the distinction between atomic or simple propositions and molecular or complex propositions and the thesis that the latter are always truth-functions of (i.e., results of truth-operations upon) the atomic constituent propositions. The distinction betwen atomic and molecular propositions may be regarded for the purposes of logic as relative; the further problem of the absolutely atomic propositions belongs to epistemology. By logical or truth operations are meant, for example, negation, disjunction, conjunction, implication—formerly termed logical constants. Thus negation is the conversion of the truth-value of a proposition to false; disjunction means that at least one of the two disjuncts is true, etc. A tautology

[3] Wittgenstein: *op. cit.*, 6.1ff, 4.3ff. Carnap: "Die alte und die neue Logik," *Erkenntnis*, I, pp. 12–26, 1930.

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is then essentially a repetition of the conventions set up as truth-operations. For example, "p or not-p" is tautologically true because of the very definitions of "or" and "not." Thus, in general, any proposition is a tautology when it is true whatever may be the truth-value of the component propositions.

It follows further that it is nonsense to doubt the validity of deduction since deduction is always tautological transformation and therefore asserts nothing new. This does not mean that logic is necessarily trivial, but that it can be made so, that is, it can be reduced to a series of tautological steps each of which, considered individually, is trivial. Professor Hahn, the Vienna mathematician, has summed this up strikingly in the remark: "Ein allwissendes Subjekt braucht keine Logik und im Gegensatze zu Plato können wir sagen: niemals treibt Gott Mathematik."

Much has been written about the problem of implication. To get at the nature of deduction we must distinguish material implication (which holds between any two propositions in all cases except when the first is true and the second false) and analytic or tautological implication (which holds between propositions whatever their truth-values). Deducibility is present only when it can be shown that the implication in question is tautological. Deducibility is therefore not definable in terms of truth-operations since it involves analytic implication and the latter depends on the inner constitution of the propositions in question. An example of analytic or tautological implication is the relation between the set of postulates (p) and the set of deduced theorems (q) in a geometry; "p implies q" is here tautological.

The question arises often whether there are many possible logics just as there are innumerable possible geometries. Certainly, there are many forms of expounding logic, but these (presumably even the many-valued logic) are merely different symbolic expressions of the same thing. Logic is what is common to all systems of language or symbolisms. In its widest sense it is the stipulation that we adhere to definitions and conventions initially agreed upon, that we be consistent and unambiguous.

In logic there is no "problem of application" as in geometry. In empirical science the problem is solved through a system of "applicational" definitions (*Zuordnungsdefinitionen*) which lay down the empirical meaning of the symbols employed. But, as Wittgenstein has pointed out, the logical constants or truth-operations represent nothing in reality. The proposition "a is x *and* b is y" says no more about reality than the two propositions "a is x" and "b is y"; the word "and" says nothing about the world.

The importance of logic as a tool lies in its ability to develop

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new and complicated forms or patterns for the representation of facts. Russell's notion of the propositional function has been particularly important; a class is to be defined by means of a propositional function with a single variable, a relation by means of a propositional function of two or more variables. The investigation and application of the structural properties of relations—symmetry, reflexivity, transitivity—has been of fundamental importance in the epistemology of Carnap and others.

Of particular interest to philosophers is Russell's theory of types, in its simple form. This asserts that a particular concept has meaning only for objects of a particular type (e.g., individuals, classes, classes of classes); for example, a function can not be an argument to itself. This is important in that it gives a necessary, though not sufficient, criterion for the meaningfulness of propositions.

Finally, Russell's view of arithmetic as a branch of logic is beset with several difficulties. There is much work being done on this problem by Wittgenstein, Carnap, and others. At least this much is clear, that, contrary to Kant, the propositions or equations of arithmetic are analytic. The same holds for the purely mathematical theory of probability.

With this insight into the tautological nature of logic we understand the true meaning of the assertion that logic is *a priori* valid. Logic can not be contradicted by empirical facts precisely because it says nothing about them. Logic is *a priori* because it is analytic. Thus, the difficulties which the older empiricism and positivism encountered in attempting to account for logic and mathematics on an empirical basis disappear. Empiricism, the denial of synthetic judgments *a priori*, is now in a position to develop a theory of knowledge capable of doing full justice to logic and mathematics.

II

One of the most important contributions of recent theory of knowledge has been the removal of the ambiguity in the term "knowledge" through the definite formulation of the distinction between knowledge proper (*Erkenntnis*) and immediate experience (*Erlebnis*)—between "knowledge by description" and "knowledge by acquaintance."[4] This distinction occupies a fundamental place in logical positivism. From it the consequence is drawn that knowledge or the communicable expresses the formal structure but not the content of experience. For the immediately given is private, non-communicable. It can be pointed to by means of demonstratives

[4] B. Russell: *Problems of Philosophy*, Ch. IV. M. Schlick: "Erleben Erkennen, Metaphysik," *op. cit.* L. S. Stebbing: *A Modern Introduction to Logic*, T. Crowell & Co., Ch. III, 1930. Though similar distinctions had been made in the past, Russell was one of the first to see its fundamental importance.

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like "this," "that," "here," "now," "I"; but assertions in which such words occur are not propositions in the strict sense. In other words, it is not the experienced qualitative content as such which is mirrored in any system of knowledge, but the formal structure or relations of the given. This becomes clear if we consider that a modification of the world in which a consistent substitution of qualities (e.g., red for green and green for red) took place would leave the whole edifice of knowledge unchanged. For, though it may seem at first glance that "red," "hot," "bitter," etc., signify the immediately given qualities themselves, we see that knowledge, as distinguished from mere "listing" or "cataloguing," does not begin until we recognize relations of similarity or dissimilarity between experiences. Hence, from the point of view of knowledge (*Erkenntnis* as distinguished from *Erlebnis*) the essence of "red," etc., is not its experienced quâle, but its unique set of relations to other qualities.

The most radical and elaborate development of the thesis that knowledge consists of propositions concerning the formal characters of experience is to be found in Carnap's *Der logische Aufbau der Welt*. Here the attempt is made to show in outline that all concepts of empirical science can be constituted or constructed by purely logical operations upon a single primitive relation and the primitive elements between which it holds. This relation and its terms are logically primitive; in this system they are indefinable and can only be pointed to. Carnap has chosen as the indefinable relation "remembrance of similarity" (*Aehnlichkeitserinnerung*); the terms between which the relation subsists are total momentary experiences, cross-sections of consciousness. This means in short that any proposition of empirical science can be completely translated into a complicated series of propositions which refer only to the relational structure of the given as expressed in the fundamental relation and terms. On this level, we are expressing the structure and pointing to the content of the given. Even should further analysis indicate that Carnap's particular attempt to construct all empirical concepts from a single primitive relation is unsuccessful, this would not alter the essential point; that the propositions of empirical science express the formal structure and not the content of experience.

Additional light is shed on the matter if we approach it from our definition of knowledge as the communicable. What knowledge communicates is structure; this it does by means of a symbolism or language. Against this limiting of knowledge to the symbolically communicable it might be objected that knowledge independent of symbolization is present in thinking as contrasted with writing and speaking. This overlooks the point that purely conceptual mirrorings of facts employ images, etc. as symbols instead of sounds or

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shapes. The term "language" is to be used in a wide sense to refer to all systems of symbols regardless of their nature as facts.

A language consists of a set of symbols which are to be combined in accordance with a definite logical syntax. The purpose of language is to mirror or express facts. This is done by means of a syntax so selected that the relations of words in the proposition represent the relations of elements in the fact. The proposition expresses the fact, therefore, in virtue of a structural similarity between it and the fact. This similarity itself can not be expressed in the same language. To express it we should require a different language in which a proposition would express this similarity in virtue of a similarity between it and the similarity. Russell, in his introduction to Wittgenstein's *Tractatus Logico-Philosophicus,* indicates that the difficulty might be met by an unending hierarchy of languages. Wittgenstein takes the position that the similarity is inexpressible. It shows itself.

This isomorphy of the system of language and the system of facts would hold, however, only when all molecular propositions had been analyzed into their constituent atomic propositions. It is not clear in Wittgenstein what propositions are atomic; the set of propositions expressing the order of shapes and colors in a visual field may serve as examples. Carnap's work is the only attempt so far to analyze to this limit the complex propositions of empirical science. There all complex propositions are reduced to sets of atomic propositions which are unanalyzable in that they contain only the fundamental relation and terms.

The theory of atomic propositions leads us to the central problem of epistemology, the problem of meaning. The importance of a sound theory of meaning is familiar in view of the contributions and discussions of pragmatism.

Meaning is to be distinguished at the outset from emotional or effective significance, which is irrelevant for epistemology, though essential for art. Further, we must distinguish in the use of the term "meaning" as applied to propositions and to words or concepts. To know the meaning of a proposition is to know what must be the case if the proposition is true. The meaning of a complex proposition is revealed when we analyze it into its component atomic propositions. The meaning or sense (*Sinn*) of an atomic proposition is the "being-the-case" or the "not-being-the-case" of the fact which it expresses. The meaning (*Bedeutung*) of a complex word or concept is given by explicit definition; that of a simple word or name by pointing to what it stands for in experience. We differentiate here between the names of a single unique object (e.g., a point in a momentary visual field) and names of recurrent objects (e.g., red, remembered similarity).

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It is a commonplace that deductive systems can be built up in different ways, that is, that primitive terms and relations may be chosen more or less arbitrarily. This is true if it is simply a task of axiomatizing a given subject-matter. But there is a privileged way in which a general axiomatization of knowledge can be carried out, namely, the way indicated by the procedure of verification. To get at the atomic propositions, the most fruitful way is not to ask in the Cartesian manner what is indubitable—but to inquire under what conditions a given proposition is true. If we can not give these conditions, we do not know the meaning of the proposition; if the conditions can not possibly be given, the proposition has no meaning. Thus working back from complex to simple we arrive ultimately at the immediate facts whose being-the-case constitutes the meaning of the proposition. Given a complex proposition, we always ask how it is verified.

As against the coherence theory of truth it is held that the single atomic proposition is true or false. It is true when the fact which it asserts is the case, false when it is not the case. The truth or falsity of propositions is ascertained by comparing them with reality.

Thus through an analysis of knowledge and symbolism we are led to a theory of meaning in terms of facts and propositions. We see again how knowledge, though it communicates only the form of the given, none the less is based upon the content, for the words in the atomic propositions are definable only concretely through pointing to content. Knowledge expresses the form and points to the content.

III

Logical positivism has thus grown up in close contact with investigations into the foundations of the sciences. There, too, it has found its most fruitful applications.

Knowledge, we have seen, expresses in terms of propositions the formal structure of experience. We must distinguish two uses of the term "formal": the first, as contrasted with content, the second, as contrasted with factual.

By formal sciences are meant logic and pure mathematics. These sciences are formal in that they say nothing about facts. Logic and arithmetic are tautological; pure geometry is concerned with relations of analytical implication between sets of propositional functions. All formal sciences are engaged, then, in elaborating symbol-patterns and assert nothing about experience.

The factual or empirical sciences (physical, natural, social) are concerned with applying these patterns to the description of the relational structure of experience. This application of purely formal patterns to facts is effected by means of concrete definitions

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which lay down the empirical meaning of our symbols and thus enable us to raise the question whether certain symbol-patterns actually fit the facts that have been gathered by observation and experimentation.

Of the formal sciences, geometry is particularly important in that it shows so well the step from formal to factual science. After centuries of confusion, the distinction between pure and applied geometry has been made precise. Einstein's well-known essay "Geometrie und Erfahrung" expresses this admirably. Applied geometry is a factual science, a branch of physics. It describes the spatio-temporal relations of physical objects. On the other hand, a pure geometry (as in the axiomatization of Euclid by Hilbert, Veblen, etc.) is a system of propositional functions which lay down a definite syntax for theorems concerning a certain number of variables. That is, the terms "point," "line," etc., in Hilbertian geometry mean nothing empirical or observable; they are purely logical symbols or variables possessing those characteristics laid down in the axioms. The philosophical importance of this method of implicit definition (i.e., of defining terms by properties stipulated in axioms) was first seen by Schlick.

In pure geometry it is not the axioms which hold necessarily, but the relation of deducibility between axioms and theorems. A geometry, in other words, is not a categorical deductive system (Euclid, Kant), but hypothetical deductive (Pieri, etc.). Necessity is always analytic; the choice of axioms always arbitrary.

Here, can be indicated the fundamental difference between arithmetic and geometry. In arithmetic, it seems at least plausible at present, that each theorem or equation is itself a tautology. In geometry, it is the implication between postulate-set and deduced theorems which is tautological, though the separate theorems and axioms are not.

The method of implicit definitions thus lays down the purely formal structure of concepts; in order to apply them to the description of the formal characters of experience "applicational" definitions are required which correlate these formal concepts with empirical content. Reichenbach, in particular, has stressed this distinction between the "*Verknüpfungsaxiomen*" which implicity define the concepts and the "*Zuordnungsdefinitionen*" which apply them to experience. In physics, the "*Zuordnungsdefinitionen*" takes the form of what Bridgman terms "operations."

It is only when through these "applicational" definitions we have made the transition from pure geometry to physical geometry that the question of the truth or falsity of a geometry can arise. The question, however, can not be answered simply. In a certain

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sense, as Poincaré saw, we can never be compelled to term a given geometry false. This is due to the fact that we have two elements which can be varied: the axioms and the "applicational" definitions. Given a set of postulates, the definitions can be so chosen that the axioms hold for experience. Euclidean geometry, today, can still be retained if we select very complicated "applicational" definitions.[5]

The choice of geometries is then fundamentally a question of simplicity. The choice between Euclidean and Non-Euclidean geometry depends on whether we prefer simpler axioms or simpler "applicational" definitions. It is interesting to note that mathematically oriented writers like Poincaré, Dingler, and Whitehead prefer Euclidean geometry, due to its greater axiomatic simplicity. It has, however, proved more fruitful in physics to take simpler "applicational" definitions since they are more directly applicable. The purpose of physics is to predict; this requires relatively simple "applicational" definitions. Thus in the theory of relativity it follows that if we take the simplest "applicational" definitions, we find that Non-Euclidean rather than Euclidean geometry accurately describes our facts. Thus the question of the truth or falsity of a geometry can not be raised and answered until we specify a set of "applicational" definitions. The term "simplicity" needs further elucidation. Reichenbach distinguishes between descriptive and inductive simplicity. The former has nothing to do with truth or falsity, but is simply a matter of convenience. Thus, the vectorial treatment of electromagnetics is descriptively simpler than the analytic; polar coördinates are often simpler than Cartesian in solving a given problem of empirical science. Inductive simplicity, on the other hand, presupposes descriptive simplicity, but involves more. For example, when we pick the (descriptively) simplest set of axioms which covers the given facts with a minimum of complication in the concrete definitions, it is no longer a question of convenience, but a question of truth and falsity, or rather of probability.

Reichenbach has shown that Euclidean geometry can be retained if, to account for the bending of light-rays, changes in clocks and measuring rods, etc., we introduce *ad hoc* "metrical" forces which, in that they affect all material bodies in the same way, are sharply distinguished from ordinary physical forces. If, however, we stipulate that the "applicational" definitions are to be so selected that all metrical forces are set equal to zero, then the choice between

[5] Reichenbach: *op. cit.*, particularly "Ziele und Wege," pp. 35–36, 47–49. H. Feigl: *Theorie und Erfahrung in der Physik*, Braun, Karlsruhe, 1929. See especially pp. 120–128.

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Euclidean and non-Euclidean geometry can be made by direct comparison with facts.

In this application of purely structural systems to reality the question of truth and falsity is further complicated by the fact that all scientific theories are built on general propositions whose validity obviously can never be rigorously established. Induction, as Hume saw, is not a logical procedure. To this Reichenbach assents, but he looks to a widened logic which, through the concept of implication with probability, will legitimize induction without committing the error of attributing certainty to it.

In this and other ways there are important differences between Reichenbach and the Viennese. For the latter, the concept of probability, which Reichenbach takes as a fundamental idea, is definable either (*a*) purely logically, for the mathematical theory of probability or (*b*) as statistical frequency. For them, therefore, applied probability is definable ultimately in terms of the truth or falsity of the propositions describing individual cases of the phenomenon in question (e.g., the tossing of a coin). However, the intricate problem of induction is far from solved and is at present one of the chief subjects investigated.[6]

The principle of causality is for the logical positivist not a categorical necessity of thought, not a necessary assumption of science, but simply a model for building laws of nature. The problem whether causal (deterministic) laws accurately describe what takes place, the problem whether ours is a causal or a statistical universe, rests with empirical science and can never be decided with certainty. The causality concept even in classical physics was closely connected with the concepts of probability and simplicity; in the old formula—under similar circumstances similar effects follow—it is obvious that the requisite data could be determined only with probability. Indeed, the classical principle of causality, precisely formulated, asserts that the probability of the occurrence of a particular event is greater the more exactly certain definite initial conditions are ascertained; whereby it is tacitly assumed that there is no limit, other than practical difficulties of measurement, to the determinability of all the relevant initial conditions. If the recent developments of quantum physics prevail, and this seems likely, their philosophical significance will be primarily that, as a consequence of the Heisenberg indeterminacy relation, the requisite initial conditions can never be completely measurable and our predictions can accordingly never attain complete certainty.

All factual sciences, then, are essentially applications of pure

[6] See papers by Reichenbach, Feigl, Waisman, and Mises in *Erkenntnis*, Vol. I, Numbers 2–4, 1930.

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symbol-patterns to the description of facts. But since the laws, e.g., of physics, are universal propositions and induction is not logically justifiable, the propositions of science though synthetic assert probabilities and are therefore not *a priori*. Thus neither in the formal nor in the factual sciences do the Kantian synthetic judgments *a priori* appear.

IV

The previous sections of this paper have served to present logical positivism in its logical and epistemological setting and to show its dependence upon and application to the recent developments in formal and factual sciences. We turn now to the view held by this new movement concerning the nature and aim of philosophy. The position is best summarized by Wittgenstein: "The object of philosophy is the logical clarification of thought. Philosophy is not a theory but an activity. The result of philosophy is not a number of 'philosophical propositions' but to make propositions clear." [7]

This critical function, which is the essence of philosophy, rests upon such an epistemology as that outlined above and has for its ultimate goal the purification of language, the elimination of meaningless assertions. Philosophy in this sense of critical activity addresses itself to both the sciences and to the traditional subject-matter of philosophy. Carnap's *Konstitutionstheorie* is an example of analyzing the meaning of scientific propositions by following them back to the given. It is practically necessary, of course, for the logical analysis of physics to remain as Reichenbach and Bridgman do in the sphere of physical concepts and employ common-sense objects and instruments; but, in view of certain difficulties and in order to achieve a thoroughgoing analysis, we must go back to the ground-floor of knowledge, the given. In Carnap's work, this has been partly carried out, partly suggested in a hitherto unrivalled form.

Carnap indicates that if we arrange empirical concepts in levels corresponding to increasing complicatedness of construction of—and thus remoteness from—the given, we find the most fruitful application of Russell's theory of types. The difference, for example, between physical and psychological concepts is a difference of types. For everything said in physics can, because of the requirement of verifiability in terms of experience, be translated into the psychological language. This, Carnap terms methodological solipsism, for the elementary experiences which are at the basis of the edifice are, if we speak from a higher level, "my" experiences. It is shown in detail how on this basis the objective (i.e., intersubjective) world can

[7] Wittgenstein: *op. cit.*, pp. 4, 11. See, too, Schlick: *Die Wende der Philosophie.*

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be constructed through a series of increasingly complicated combinations of the given.

This analysis of concepts has an interesting application to the problem of the existence of other minds. Since the meaning of propositions is identical with the conditions of their verification, therefore, propositions concerning other minds are completely translatable into propositions concerning total (theoretically) observable behavior and these, in the last analysis, are completely translatable into propositions concerning "my" experience. The familiar analogy argument to the existence of other minds is untenable since argument by analogy is permissible only when there exists the possibility of subsequently verifying the conclusion empirically. An "immediate perception" of other minds would not alter the case, for it would then be our own mind, not that of another, of which we were aware. These results may seem fantastic to many, but those who read Carnap's analysis will see how the "plus" added to behavior can in no way be formulated, but must be interpreted in terms of associated emotional significance.

In addition to the positive task of clarifying the propositions of the sciences, philosophy has the largely negative task of analyzing the subject-matter traditionally ascribed to it, particularly metaphysics. Logical positivism goes beyond the earlier positivistic and pragmatic rejection of metaphysics as superfluous which applied the principle of Occam's razor. For the new positivism, metaphysical propositions are, strictly speaking, meaningless, since a proposition has meaning only when we know under what conditions it is true or false.

Applying the criterion of meaning first to ethics it is clear that ethics as "normative" science is impossible. Experience revels what is, never what ought to be. Ethical imperatives are always hypothetical, never categorical. Ethics is not a science like sociology, but a technology like medicine; it is an application of the results of descriptive science to the pursuit of happiness.[8]

As for metaphysics in its various forms, it follows that the great historical systems of metaphysics, in general, can not be characterized as meaningful. They have, of course, tremendous affective efficacy, and often possess genuine esthetic merit. But since their propositions are admittedly incapable of empirical verification, they have no meaning as knowledge. The silent mystic is the sole consistent metaphysician.

A special type of metaphysics, the inductive, is usually meaningful as science, e.g., the atomic theory of Democritus. As a rule such metaphysics involves hasty extrapolations. But as long as the ex-

[8] See M. Schlick: *Fragen der Ethik*, Springer, Wien, 1930.

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trapolations remain within the realm of the (theoretically) empirically verifiable, they are not meaningless. The basis for rejecting inductive metaphysics is purely practical or methodological; it is usually though not always bad science.

It might be objected that the theory of meaning employed here is too narrow—that it arbitrarily excludes other than empirical verifiability. To this it may be replied first that the theory of meaning in question suffices for all scientific purposes whether we consider the physical or the natural or the social; Carnap's book demonstrates precisely this. But, secondly, we may counter by asking what other type of verification can be advanced. There have in general been two quite different methods suggested; the intuitive and the "dialectical." Intuitive metaphysics holds that knowledge can be acquired through pure intuition without ordinary logical and empirical factors. But the belief in this royal way, as Schlick has pointed out, rests in the end upon a confusion between knowledge and immediate non-cognitive experience. Intuitive metaphysics is the vain search to know (i.e., describe) content, to express the inexpressible.[9]

By dialectical demonstrations are meant those which, admittedly incapable of empirical verification, are based upon cogency of argument, analysis of the implications of ideas and the like. An example of this is the realist's inference from sense-data to the transcendental causal objects. The belief in the validity of such argumentation is based upon a failure to see the tautological or analytical nature of all necessary inference or formal implication. Since deducibility is tautological, the conclusion can not contain logically any more than is asserted in the premises of the argument, in this case empirical sequences. Nor is dialectical demonstration in the sense of a merely probable inference to entities beyond experience permissible. Probable inference is but another name for argument by analogy or by induction. Such argumentation is valid only in empirical questions, where the possibility of subsequent empirical verification of the conclusion is present.

It is this illegitimate use of the notion of inference which lies at the bottom of most metaphysics—particularly some forms of realism. Russell, in a passage quoted by Carnap at the beginning of his major work (but forgotten by Russell if one may judge by his *Analysis of Matter*) states: "The supreme maxim in scientific philosophizing is this: Wherever possible, logical constructions are to be substituted for inferred entities." Logical positivism goes farther and asserts that in every case where so-called inferred entities are invoked, the term "inference" is meaningless; what is really meant as a rule is that such entities are constructs of the given.

[9] Schlick: "Erleben, Erkennen, Metaphysik.," *op. cit.*

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The development of mathematics in the nineteenth century provides us with an instructive analogy. Early mathematics went on to new types of numbers (rational, real, complex) by the method of postulation. That is, they stipulated the mathematical existence of numbers having the desired properties. The critical investigation of the foundations of mathematics from Weierstrass, Cauchy, and Cantor, Dedekind to Whitehead and Russell has shown that all types of numbers can be constructed purely logically from the series of natural numbers. Analogously, logical positivism feels that it has shown that all so-called inferred entities—be they tables, atoms, or other minds—are to be constructed purely logically from experience. Therefore, as in mathematics the most abstract theorem of analysis can be completely translated—and this is its justification—into a series of propositions concerning natural numbers, so logical positivism holds that the propositions of the empirical sciences can be completely translated—and this, again, is their justification—into a series of propositions containing only terms designating the given.

In that it rejects all transcendentalism, logical positivism is often termed phenomenalistic. This is correct if the term is employed methodologically, incorrect if by phenomenalism is meant the metaphysical assertion that only phenomena, i.e., immediate experiences, exist. This proposition is meaningless because unverifiable; there is no way of giving the conditions under which we should call it true or false. Like the assertions of realism and idealism, in short, it contains the metaphysical concept of reality or existence to which no meaning can be assigned. In the conduct of science, this concept has no place; the concept of empirical reality is independent of these metaphysical differences. It is in this sense that science forever remains metaphysically neutral. The realistic and idealistic geographers who debate the reality or existence of a mountain in Africa, always decide the question empirically by facts regardless of their metaphysical differences. Empirical reality (as distinguished, for example, from illusoriness) means orderability in the space-time physical universe; this is always determinable through a specific means of empirical verification. To say that something is real is to say that certain data are observed, that certain facts are the case. It means nothing more.[10]

There are, to be sure, varieties of meaninglessness. The simplest are cases of confusion in logical type; thus, in Russell's theory of number "seven is red" is meaningless, since we have sustituted as a value in the propositional function "x is red," not an "individual" as required, but a something of a different type, namely, a class of classes. Usually the meaninglessness of assertions can be traced to

[10] See R. Carnap: *Scheinprobleme in der Philosophie, op. cit.*

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the occurrence in them of undefined (but not primitive or logically undefinable) concepts, for example, the metaphysical concept of reality and transcendental concepts in general. The term "will" in Schopenhauer, though meaningful in certain provinces, loses meaning when extrapolated throughout the universe. The meaningfulness of a proposition shows itself when we ask whether it is verifiable.

It may be objected that certain assertions occur in the sciences which are not verifiable. This objection is based on a confusion as to the meaning of the *possibility* of verification. That is to say, the impossibility of verification may be (*a*) purely practical, based on the limitations of our instruments (e.g., propositions concerning the other side of the moon); again, (*b*) the impossibility may be due to the fact that what is asserted is contrary to the laws of nature accepted at the time (e.g., propositions concerning a perpetuum mobile). Such impossibilities do not prove the propositions meaningless. It is only when theoretically as well as practically there is no possibility of verification (e.g., in the case of propositions which contain undefined terms, contradictions, mixture of logical types) that the proposition is meaningless. Concrete instances of the meaningless assertion are those concerning a Ding-an-sich, Unknowables, realism vs. idealism, the "mental states" of others.

The purpose of philosophy is the clarification of the meaning of propositions and the elimination of just such meaningless pseudo-propositions.

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HOW A LOGIC OF "PROPOSITIONS" FAILS OF COMPLETE GENERALITY

THERE are two ways in which a logic of "propositions" fails of complete generality. In the first place its variables are restricted to single truth-values so that it can give no interpretation of multiple-valued expressions. In the second place it recognizes only one meaning of true and one meaning of false. A restricted logic of this sort leads at once to certain so-called paradoxes of the reason.

Suppose that $\phi(p)$ is a multiple-valued expression in p, and suppose $\phi(p)$ becomes either true or false when p takes on in succession the values $a, b, c, \ldots$ so that $\phi(a)$, $\phi(b)$, $\phi(c)$, etc., are all propositions either true or false. If we represent "ϕ is false" by $f\phi$, then $f\phi(a)$, $f\phi(b)$, $f\phi(c)$, etc., are each in turn propositions either

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true or false. We may then establish a one-to-one correspondence between the members of the two sets for the case in which the number of true values is the same as the number of false values, supposing that the number of truth-values is finite. The extension of our remarks to functions having an infinite number of truth-values, involving the question as to whether the series is well-ordered and countable, is obvious. Thus if $\phi(p)$ becomes *zero* for $p = a$ and $p = c$ and *one* for $p = b$ and $p = d$ we may establish the following one-to-one correspondence,

$$\begin{array}{cccc} \phi(a) & \phi(b) & \phi(c) & \phi(d) \\ f\phi(b) & f\phi(a) & f\phi(d) & f\phi(c) \end{array}$$

and if a, b, c and d are the only values of p that make $\phi(p)$ either *zero* or *one*, we may say ϕ may be equivalent to $f\phi$ for *all* values of p taken *collectively*, but not for *all* values of p taken *distributively*. It is this fact that would lead to difficulties, if we were to extend our reasoning to the case in which the series, a, b, c, . . . is infinite, for in that case the question of the legitimacy of the concept of an infinite totality would arise.

Let us now apply this reasoning to an actual case, the problem of Epimenides, which we shall take in the form of

This proposition is false.

Here we seem to have, if p stands for *this proposition*,

$$p = f(p).$$

The solution lies in defining p (a definition the author has given elsewhere) so that it will be two-valued, one value being *zero*, p_0, and one value being *one*, p_1. Then our one-to-one correspondence becomes

$$\begin{array}{cc} p_0 & p_1 \\ f(p_1) & f(p_0) \end{array}$$

and p is the same as $f(p)$ *for all values of* p taken collectively. We remark that two-valued functions are not unfamiliar to the mathematician, the simplest case that one can think of, being perhaps $\sqrt{2}$. The case we have just discussed is a simple logical analogue of this one. Just as p remains two-valued when operated upon by f, so $\sqrt{2}$ remains two-valued when operated upon by minus one.

The second way in which a logic of "propositions" fails of generality lies in failing to distinguish different meanings of the true and the false. The writer has shown elsewhere that these distinctions are infinite in number, that they are all essential (since if any two were identified all would disappear) and that each one can be uniquely defined by an equation whose form can be found at

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once by inspection. It is a dictum of the Russellian logic that no variable entering into a function can have the function as one of its possible values. This dictum we deny by making it our definition of false. Thus if $f(p)$ has the form $\phi(p)$, any f which satisfies

$$f(f) = \phi(f)$$

is the meaning of false required. It can be shown that this meaning is unique and it evidently depends on the form of ϕ, which is what we should expect. This solution of the Epimenides problem is independent of the meaning of false, in the sense that it holds for all meanings of false.

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BOOK REVIEWS

Five Types of Ethical Theory. C. D. BROAD. New York: Harcourt, Brace and Company. 1930. xxv + 288 pp.

This volume consists of five essays, together with an Introduction and Conclusion. The essays give an account of the theories of Spinoza, Butler, Hume, Kant, and Sidgwick. The Introduction presents brief biographical data concerning the five thinkers selected for treatment, and the Conclusion offers a "Sketch of the Main Problems of Ethics."

Mr. Broad's method is that of detailed and exhaustive analysis. This method determines at once the merits and the limitations of the work. It is not a book to be read continuously, nor is it one to be offered to the student who has not attained a considerable degree of mastery of ethical theory. Even the hardened initiate will prefer to take it in small doses, consulting the various sections as they chance to become pertinent to any problem in hand. He will then find himself in a position to appreciate the often acute criticisms with which the book abounds.

The statement just given concerning the profitable uses of the work might be illustrated and enforced at length. In the essay on Sidgwick alone, for example, the topics treated, including the divisions and subdivisions which Mr. Broad makes in his discussion, run well up towards a hundred. This characteristic also renders a detailed review impossible unless the reviewer were to write essays corresponding to those of the author.

Readers will perhaps find the treatment of Spinoza somewhat disappointing because of what it deliberately excludes. All that depends on *Scientia Intuitiva*, or the *Third Kind of Knowledge*, viz: the *Intellectual Love of God, Human Blessedness*, and the *Eternity of the Human Mind* is omitted. Mr. Broad insists that, although

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these are "among the hardest, the most interesting and the most characteristic parts of Spinoza's system, they belong to his philosophy of religion rather than to his ethics." And to any one who might feel that scant justice is done to the moral wisdom embodied in Spinoza's treatment of the emotions, I think Mr. Broad's reply would be that in his essay he is not concerned with edification, but with the truth or error of an ethical theory. However, he pauses to pay generous tribute to the wisdom and goodness of the man, declaring that in the conduct of his life he "accomplished one of the hardest of all tasks, viz., to be a prophet without being a prig, and to be a saint without being a sponger."

One is not surprised to find the essay on Butler the most readable of the series. The reason is largely expressed in Mr. Broad's own words: "He writes about facts with which we are all acquainted in language which we can all understand; and his work, though it does not pretend to be a complete treatise on ethics, forms one of the best introductions to the subject that exists."

Mr. Broad rightly insists that one outstanding merit of Butler was to give the *coup de grâce* to the widely current theory that disinterested action is psychologically impossible. "He killed the theory so thoroughly," says Mr. Broad, "that he sometimes seems to the modern world to be flogging dead horses. Still all good fallacies go to America when they die, and rise again as the latest discoveries of the local professors. So it will always be useful to have Butler's refutation at hand." Whether America is the heaven of "all good fallacies" and "local professors" their guardian angels, and whether English dons are the final judges of fallacies, both the quick and the dead, are questions of eschatology into which I can not enter. But I will go so far as to support Mr. Broad's view of the vitality of this particular fallacy, at least among students when they first encounter the problem. It always rests upon an ambiguity, or rather a misuse, of language. Because all acts are acts of an ego or a self, they are therefore all egoistic or selfish. So runs the popular statement of the fallacy that Butler so well refuted.

In interpreting Butler, Mr. Broad seems at one important point to leave the good bishop in a dilemma either of doubt or of renunciation of a stoutly affirmed belief. This concerns the place of happiness in his system. Noting the familiar assertion in Sermon XII, Mr. Broad remarks: "In one place he says that it is manifest that nothing can be of consequence to mankind or to any creature but happiness." He then speaks of the *Dissertation on Virtue* as if it offered some qualification of this doctrine. On the contrary, I think it clear that Butler's statements that happiness is the ultimate end or value of existence are made with the essential teaching of the

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Dissertation fully in mind. In Sermon XI, he says: "Let it be allowed, though virtue or moral rectitude does indeed consist in affection to and pursuit of what is right and good, as such; yet that when we sit down in a cool hour, we can neither justify to ourselves this or any other pursuit, till we are convinced that it will be for our happiness, or at least not contrary to it." And the footnote to Sermon XII explicitly states the principle of the *Dissertation*. It appears, therefore, as no after-thought or modification of Butler's system. What he gives us is a familiar form of theological Utilitarianism, according to which God has dealt better with mortals than to leave them to a blundering calculation of the hedonic effects of their conduct, "since so many and distant things must come into the account." The appeal to conscience as automatic guide to the final attainment of happiness falls in with the general trend of eighteenth-century thought, which had little confidence in the power of intelligence to plan or control the fortunes of human life. Adam Smith developed this tendency to the full in the economic sphere. The "invisible hand" so arranged terrestrial affairs as to secure the maximum social welfare when there was a minimum interference with the free pursuit of individual advantage.

The shorter essays on Hume and Kant, and the longer, more elaborate paper on Sidgwick may be consulted on occasion both for a careful statement of their theories and for interesting criticisms.

In the *Conclusion* Mr. Broad gives an exhaustive analysis of what he considers the possible forms of ethical theory. His first distinction is between "naturalistic" and "non-naturalistic" types. I confess to a dislike of the term "naturalistic" when there is no suggestion of the fundamental opposition to super-naturalistic which it implies. Elsewhere Mr. Broad shows a wise caution in the use of "natural" which might well have been extended to its derivative. I must, however, resist the temptation to enter upon a criticism of the elaborate scheme of distinctions which he here presents. Most students will be led speedily to invoke the scholastic maxim against multiplication *praeter necessitatem*.

The perusal of Mr. Broad's work will also arouse in many minds serious reflection about the business of ethics. In a frank and genial Preface he warns the reader that he finds it difficult to excite himself "very much over right and wrong in practice," and that he does not consider "a white-heat of moral enthusiasm" to be "the most favorable condition" in which to conduct intellectual inquiries. At the conclusion of his study, in similar vein, he insists that the interest of ethics is "almost wholly theoretical," but "good fun for those who like that sort of thing."

Now as regards the temper in which all intellectual inquiries

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should be conducted, and also as regards the "good fun" to be enjoyed in their pursuit, I am wholly of Mr. Broad's mind. But I am at the same time fully convinced that the kind of theorizing in which he engages does not exhaust the legitimate field of ethics. What, one is impelled to ask, of the objective content to which the elaborate inner mechanism is to be applied? What of the social conditions under which the good life wins its fulfillment or goes down to defeat? What of the interests that can permanently inspire and support such a life? Mr. Broad's view of ethics appears as inadequate as would a philosophy of education which should limit itself to a study of the mental powers and processes involved in the acquisition of knowledge, but should disregard or fail to evaluate the subjects to be known. Neither in education nor in morals are the objective interests pursued indifferent; in neither case are they all of equal value; some, far more than others, have the power to quicken and to transform life.

I suspect that the reason for the admitted decline of ethics as an academic discipline is to be found chiefly in a narrow conception of its nature and function. And its scant appeal to popular thought is undoubtedly due to the same cause. One has only to examine prevailing conceptions of morality to discover how little they have been touched by sound reflection. Morality has to do, it is commonly believed, with personal probity in the relations of individuals. The more weighty concerns of daily life have been largely left to the vigorous impulsion and control of non-moral interests. Industry, finance, politics, diplomacy, nature, Providence,—these represent, in various ways, forces which have been thought of as operating according to their own inherent principles, and which will not brook interference. As a result, conscience has easily escaped responsibility even where events were obviously within human control. Not until the hitherto unmoralized activities of men are annexed by ethics, can this greatest of the humanistic disciplines win its rightful place in theory or in practice.

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Essays on the Natural Origin of the Mind. C. A. STRONG. London: Macmillan and Company, Ltd. 1930. Pp. vii + 304.

C. A. Strong's volume, *Essays on the Natural Origin of the Mind*, consists of a brief preface, an introduction, and eight essays, the first four of which essays have, in a slightly different form, appeared as articles in *Mind*.[1] As the preface is philosophically unimportant

[1] Essay I is in Vol. XXXV, pp. 39–58; Essay II, in Vol. XXXV, pp. 137–153; Essay III, in Vol. XXXVII, pp. 173–191; Essay IV, in Vol. XXXVII, pp. 393–413.

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and as the reader of the review is probably familiar with the prototypes of the first four essays, I shall confine my expository remarks to the introduction and the last four essays.

In the introduction, Strong states his problem and indicates briefly the manner in which he proposes to solve it. His problem appears to be to "explain" "the connection of mind and body" (p. 1) and "how it" (mind) "comes into being" (p. 2). The solution which he suggests is first, a reinterpretation of matter (p. 3) and second, and what he considers more important, a reinterpretation of mind (p. 4). Modern physics has taken a step in the first direction; and if psychology employs the "physical method," it will take a most important step in the second direction (p. 4). The greater part of the rest of the introduction is devoted to an enumeration of "the chief results to which a thorough employment of the physical method leads" (p. 7).

In the first part (pp. 163–173) of essay V, the author examines Bergson's attack upon Psychophysical Parallelism in "Le paralogisme psycho-physiologique," an attack which Strong thinks is ineffective only against that particular form of the theory which he accepts, viz., a metaphysically monistic form (p. 170) in which "the substance of things" is conceived as "composed of parts" (p. 168). After an intermediate section on "truth and falsity in acquaintance" (pp. 173–185), Strong returns to the problems of the first part of the essay and argues that the "identity theory" alone explains the mind-body relation (pp. 185–191).

Having in preceding essays applied his "theory of awareness" to sense-perception and introspection, the author attempts, in essay VI, to apply this theory to the other cognitive functions. As regards the central problem of the volume, this essay is of particular interest as an attempt to avoid "emergence" by interpreting these cognitive functions in terms of a minimum number of "new" entities.

In the first part (pp. 133–147) of the following essay, the author argues that the act of awareness and the datum of awareness, but not the Self, are simple and indivisible, a view which he proceeds to compare (pp. 247–255) with the closely similar views of Hume, Kant, J. S. Mill, and Clifford. The constituent elements of the Self, which "may be infinite" in number (p. 256), are units of "sentience," a term the meaning of which Strong endeavors (pp. 256–268) to make clear.

In the final essay, the writer defends himself against James' objections to the Mind-Stuff theory in *The Principles of Psychology*, objections which he finds unconvincing principally because of James' failure to distinguish, on the one hand, between the Self,

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the acts of awareness, and "the things that appear to them" (pp. 275–294), and on the other hand, between acts of awareness and feelings (pp. 295–304).

There is so much in Strong's argument with which I fear I can not agree that, with the limited space at my disposal, I had better restrict myself to the one or two criticisms of greatest importance. I shall have to pass over, e.g., his odd "theory of error"—a theory according to which it is asserted, among other things, that because there is always an existent in some place at some time, the "apparent thing" and the "real thing" are even "in untruthful perception" "identical as to existence" (pp. 111–112)—and, again, his extremely curious view that "the ultimate elements of sentience are the units existing in points at instants" (p. 256)—a view which, even if it can be rendered intelligible, must remain irreconcilable with his doctrine that bits of sentience have extension and duration.

For one thing, Strong makes no attempt to justify his fundamental assumption (see, e.g., pp. 2–4) that in order to "explain" the relation between mind and matter, mind and matter must be alike. And this, despite the fact that not only has this assumption seemed to a multitude of philosophers lacking in obviousness but, at least when the term "explain" is understood in the "scientific" sense,[2] definitely false.

Nor can it be said that, in the rigorous sense in which Strong construes the term, he *has* "explained" the relation between mind and matter. Take his "explanation" of the origin of mind. Does he not suppose that in the evolution of mind there was an emergence out of bits of sentience at least of sense-data? And does he not admit that sense-data, unlike bits of sentience, are existentially dependent upon the act of perception, are not in Space and Time, have color or tone or odor, etc?

It is true that he very frequently, and quite inconsistently, maintains that sense-data "really are" bits of sentience, as when he insists upon the identity between "what appears as a nervous process" and bits of sentience (see essay VI). But can such an equivalence be maintained? I think not. For a sense-datum if, e.g., it be visual, certainly possesses, to mention only one of its properties, color, whereas bits of sentience presumably possess no color. Strong can not be right, therefore, in saying that the two are "really identical."

This latter objection, an objection which, I believe, faces almost all forms of Panpsychism, suggests another. If what appears as a nervous process is *not* identical with "the inner reality," what "ex-

[2] See Lovejoy's "The Meaning of Emergence and its Modes," *Proceedings of the Sixth International Congress of Philosophy*, p. 9.

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planation" can the Panpsychist give now of their "parallelism"? Is he not forced back to the very objectionable doctrine of a Pre-established Harmony or to the hardly less objectionable Double Aspect theory? Whatever the correct answer may be, certainly on the surface this destiny appears inevitable. Strong, however, gives no hint as to how he hopes to escape this fate.

ROSS THALHEIMER.

PHILADELPHIA, PA.

An Introduction to Philosophy. JACQUES MARITAIN. Translated into English by E. I. WATKIN. New York: Longmans, Green and Co. 1930. 272 pp.

M. Maritain's *Introduction to Philosophy* is unique among the texts that seek to introduce students to the problems of philosophy. For he writes as a convinced Aristotelian (with certain Thomistic emphases) and refers to modern philosophy only as a corruption of and unfortunate departure from the truth once for all embodied in Aristotle's *Metaphysics.* As one glances over the introductory texts that have been used during the past generation in American colleges and have poured from the press during the past decade, one can not but recognize the distinctive nature of M. Maritain's enterprise. For teachers who wish to introduce students to philosophy without spending the whole time in resolving the epistemological tangles of modern system-making and to secure a more direct approach to ontological questions, M. Maritain's book deserves attention.

As M. Maritain reads the history of thought, Aristotle "founded for all time the true philosophy. If he saved whatever was true and valuable, not only in Plato, but in all the ancient thinkers of Greece, and brought to a successful conclusion the great work of synthesis which Plato had attempted, it was because he definitely secured the attainment of reality by the human intellect" (p. 83). Or again, Aristotle "found room in his speculations for every variety of being without violating or distorting the facts at any point, displaying an intellectual vigour and freedom to be surpassed only by the crystalline lucidity and angelic force of St. Thomas Aquinas. But this vast wealth is arranged in the light of principles, mastered, classified, measured, and dominated by the intellect. It is the masterpiece of wisdom, a wisdom which is still wholly human, but nevertheless, from its lofty throne, embraces with a single glance the totality of things" (p. 89). To an Aristotelian metaphysics M. Maritain adds the grace of God and revelation; but he recognizes philosophy as a human and rational enterprise and so does not allow the dogmas of the Catholic Church to control his ontological analyses.

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M. Maritain's book falls into two parts. The first part is largely taken up with an historical summary of thought before Aristotle. This part is not very satisfactory. M. Maritain believes in "a primitive tradition . . . that the first man received from God," so that in every race of mankind certain truths are implicitly recognized and are found in a form that is "purer the further back we follow their history" (pp. 24–25). Even about the Greeks before Aristotle he pronounces dogmatically on many points where he is either surely wrong or on very doubtful ground. He assumes (p. 55) that Anaxagora's νοῦς is an anticipation of Aristotle's God. He makes Xenophanes a pantheist without any indication that another interpretation of Xenophanes is possible and even probable. He gives a ridiculous definition of sophistry as "not a system of ideas, but a vicious attitude of mind" (p. 65), being perhaps controlled in his judgment, not by a study of the sophists, but by Aristotle's remark that a sophist is "one who makes money out of apparent wisdom." He catalogues Aristophanes as "a superficial observer" of Socrates's circle, though such scholars as Burnet (in his article on Socrates in the HRE) have established a good case for taking the *Clouds* as a keen and penetrating criticism of the Socratic group. He brushes aside Plato's doctrine of knowledge as recollection without pausing to inquire how best this doctrine might be interpreted. Indeed his whole picture of Plato seems to me decidedly perverse and unjust. He abuses Plato in order to make Aristotle the greater,—or so it seems to my reading of his sketch. Even in mentioning Aristotle's doctrine of the soul he gives it such a twist as to make it a satisfactory basis for the Christian view of the soul as an immortal spiritual substance; and while there are passages in Aristotle that lend themselves to that interpretation, there are more passages of quite a different tenor.

But it seems to me that one could entirely reject the first hundred pages of M. Maritain's book and yet find the remaining one hundred and fifty pages highly useful. At least the second part of his book would play into the hands of a teacher of Aristotelian convictions. M. Maritain states and seeks to prove in turn seventeen conclusions. He is here at his best and exhibits a profound grasp of Aristotle's metaphysical position. These conclusions sum up Aristotle's teaching on such points as the following: the nature of metaphysics as first philosophy, the relation of metaphysics to the special sciences and to theology and to "common sense," the chief divisions of philosophy, the nature of ideas, the origin of ideas, the status of universals, the nature of truth, the intelligibility of being, the accessibility of being to intelligence, the nature of essence as the first principle of intelligibility that our intellects grasp, the nature

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of substance, accident, and potentiality. M. Maritain makes more of non-sensible substances that have no ὕλη than does Aristotle; but this fact is due to the Thomistic position in the light of which he reads his Aristotle. On other matters his analysis generally follows Aristotle very closely and with brilliant penetration.

Throughout this second part of his book M. Maritain makes a series of classifications of other philosophies in their contrast with the philosophy of Aristotle. This series is one of the most interesting features of the book. Though the classifications would doubtless require amplification from any teacher who put the book into the hands of elementary students, they are highly instructive and competently executed. In every classification in the series M. Maritain makes the position of Aristotle a happy mean between errors of which other philosophies have been guilty. For example, Aristotle's theory of the relation of metaphysics to the special sciences is the true mean between the Cartesian contention that the principles of the special sciences are directly subordinate to those of philosophy and the positivistic contention that the principles of the special sciences are independent of any metaphysical viewpoint. Or again, Aristotle's respect for "common sense" is the mean between the credulity of the Scottish School and the tendency of "modernist" thought to regard the convictions of common sense as destitute of any speculative value. Or once more, Aristotle's theory of universals is a mean between nominalism and extreme realism. Or still again, Aristotle's theory of substance and accidents is the mean between the contention (as in Descartes) that substance consists wholly in what it essentially is and has no accidents and the phenomenalist contention that substance is nothing but a certain clustering of accidents. Any such series of classifications is perhaps dangerous, as it so easily leads to a distortion of the thought of those used as illustrations of objectionable extremes of error. But, while it can not be a substitute for a careful study of the history of ideas for their own sake, it has pedagogical possibilities.

The usefulness of M. Maritain's book is perhaps twofold. On the one hand it might serve the purposes of teachers who wish to have students work on Aristotle's metaphysics and yet find their students unprepared to dig into Aristotle's text directly. On the other hand it might serve for what its title indicates that it is meant; at least it might serve as a text in a general introductory course when the teacher wishes to take the Aristotelian point of view. Perhaps the book is not quite so useful in the second respect as in the first. For it is a bit cock-sure as well as a bit cut-and-dried. Yet there is something to be said for even a cock-sure book. Introductory courses in philosophy sometimes give students the impression (as

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indeed I have heard from more than one college student of serious character) that any opinion is as good as any other because all opinions alike can be established and overthrown with equal ease. It seems to me that many teachers of philosophy, aiming to secure for their students the virtue of a mature spirit of critical detachment, really induce that spirit of misology against which Socrates warns us in the *Phaedo*. I would rather err in being a propagandist for what I believe to be really true than in leaving students with the supposition that it does not really matter what they believe. Of course neither error is necessary, even if both errors are difficult to avoid.

I can not resist saying in conclusion that I regret that M. Maritain's text is so unique among introductions to philosophy. We ought to have more elementary texts from the point of view of Aristotle's metaphysics. If some one of them avoided the snap-judgments that M. Maritain gives on Aristotle's predecessors and argued for the Aristotelian metaphysics with a more urbane and genial style (without losing M. Maritain's analytical brilliance), it would be, though but an elementary text, a momentous contribution to philosophical studies.

STERLING P. LAMPRECHT.

AMHERST COLLEGE.

JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. 56e Année, Nos. 5 et 6. La catégorie affective du surnaturel: *L. Lévy-Bruhl.* La philosophie spéculative de Whitehead: *J. Wahl.* Les dimensions du temps correspondant à l'expansion de la vie de l'esprit dans l'inconscient: *E. Lubac.* Le sort de la personnalité: *W. Drabovitch.* Le Langage (fin): *A. Ombredane.*

Ford, Adelbert: Group Experiments in Elementary Psychology. (Students' Manuel & Notebook.) New York: Macmillan Co. 1931. 241 pp. $1.25.

Fuller, B. A. G.: History of Greek Philosophy. Vol. II: Sophists. Socrates. Plato. Vol. III: Aristotle. New York: Henry Holt & Co. 1931. x + 493 pp.; 372 pp. $3.00; $2.75.

Geiger, George Raymond: The Philosophy of Henry George. (Ph.D. dissertation, Columbia University, 1931.) Grand Forks, N. D. 1931. 325 pp.

Glover, T. R.: The World of the New Testament. New York: Macmillan Co. 1931. 223 pp. $2.00.

Heindel, Max: The Rosicrucian Cosmo-Conception. 12th ed. Oceanside, Calif.: The Rosicrucian Fellowship. 1931. 606 pp. 75c.

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Innominatus: Solution of the World-Riddle. Book One—Epistemology. San Francisco: Harr Wagner Publishing Co. 1931. $2.50.

Lanz, Henry: The Physical Basis of Rime. An Essay on the Aesthetics of Sound. Stanford University: Stanford University Press. London: Humphrey Milford. Oxford University Press. 1931. xiv + 365 pp. $6.75.

NOTES AND NEWS

The incumbent for the academic year 1931–1932 of the Roosevelt Professorship in Berlin will be Frederick J. E. Woodbridge, Johnsonian Professor of Philosophy at Columbia University. President Butler in announcing the appointment stated that "hereafter it will be open to the trustees of Columbia University to designate for this chair any American scholar who may be accredited for service in the University of Berlin, in the Technische Hochschule, in the Handel's Hochschule, or in the Deutsche Hochschule für Politik, as his subject of major interest may indicate." Professor Woodbridge will be accredited to the University of Berlin.

The Annual Meeting of the Mind Association and Joint Session with the Aristotelian Society will be held at Trinity College, Cambridge, July 3–5, 1931. The following arrangements have been made:

FRIDAY, JULY 3.

8 P.M. Chairman: Professor Edgell. Address by Professor Sorley.

SATURDAY, JULY 4.

10 A.M. Chairman: Professor Moore. Symposium—"Indeterminacy and Indeterminism." Dr. C. D. Broad, Sir Arthur Eddington, Mr. R. B. Braithwaite.

8 P.M. Chairman: Dr. Broad. Symposium: "The Coherence Theory of Goodness." Prof. H. J. Paton, The Provost of Oriel, Prof. J. L. Stocks.

SUNDAY, JULY 5.

10 A.M. Chairman: The Provost of Oriel. Symposium: "The Nature and Validity of Formal Logic." Dr. A. C. Ewing, Dr. F. C. S. Schiller, Mr. C. A. Mace, Mr. A. R. Knight.

8 P.M. Chairman: Prof. Sorley. Symposium: "Actuality and Value." Prof. Baird, Prof. G. Dawes Hicks, Prof. de Brugh.

Applications for membership and payments should be made to Prof. G. E. Moore, 86 Chesterton Road, Cambridge, Eng.

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Volume XXVIII. No. 5. February 26, 1931.

Mind in "Process and Reality": CHARLES W. MORRIS.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 6. March 12, 1931.

Report of the California Meeting of the American Philosophical Association. ARTHUR E. MURPHY.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 7. March 26, 1931.

Francis Bacon and Contemporary Philosophical Difficulties. JOHN STORCK.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 8. April 9, 1931.

Kant's Philosophy of Peace and War. A. C. ARMSTRONG.
Immanence-Transcendence. JOHN WRIGHT BUCKHAM.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 9. April 23, 1931.

The Place of Repression in Morality. CONSTANCE RATHBUN.
On Defining "Existence." DURANT DRAKE.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 10. May 7, 1931.

Moral Freedom and Power. A. MYRTON FRYE.
The Problem of Gravitation in Aristotle and the New Physics. PHILIP MILLER KRETSCHMANN.
Book Reviews. Journals and New Books. Notes and News.

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Vol. XXVIII, No. 12. June 4, 1931.

The Journal of Philosophy

GEORGE HERBERT MEAD[1]

As I look back over the years of George Mead's life, and try to sum up the impression which his personality left upon me, I seem to find running through everything a sense of energy, of vigor, of a vigor unified, outgoing and outgiving. Yet as I say this I am aware that perhaps only those who knew him best have a similar impression. For there was nothing about him of the bustle and ado, the impatient hurry, we often associate with vigor. On the contrary he was rather remarkably free from the usual external signs of busy activity. He was not one to rush about breathless with the conviction that he must somehow convince others of his activity. It was rather that he threw himself completely into whatever he had to do in all the circumstances and relations which life brought to him. He gave himself with a single heart to whatever the day and the moment brought. When anything needed to be done, there was no distinction in his life between the important and the unimportant; not that he was careless and undiscriminating, but that whatever really needed to be done, whatever made a demand upon him, was important enough to call out his full vigor. If he did not give the impression of bustling energy, it was precisely because in all that he did his energy was so completely engaged and so unified from within. He faced everything as it came along; incidents were opportunities for reflection to terminate in decision. One can fancy him perplexed temporarily in thought by the complexities of some issue; one can not imagine him hesitant to meet the issue or shillyshallying in meeting it. His consciousness never sicklied over the scene of decision and action; it completely and inwardly identified itself with it. It might be household duties, it might be the needs of a friend, or of the physical and mental needs of the many young persons that he and Mrs. Mead gathered about them! It might be his reading, his study, his reflection, his recreations, tramps, and travels. In each occasion as it arose there was found the natural opportunity for the free and vital release of his powers.

For his vigor was unified from within, by and from the fullness

[1] This article is the greater part of what Professor Dewey said at the funeral of Professor Mead in Chicago, April 30, 1931.

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of his own being. More, I think, than any man I have ever known, his original nature and what he acquired and learned, were one and the same thing. It is the tendency of philosophic study to create a separation between what is native, spontaneous, and unconscious and the results of reading and reflection. That split never existed in George Mead. His study, his ideas, his never ceasing reflection and theory were the manifestation of his large and varied natural being. He was extraordinarily free from not only inner suppressions and the divisions they produce, but from all the artificialities of culture. Doubtless like the rest of us he had his inner doubts, perplexities, and depressions. But the unconscious and spontaneous vigor of his personality consumed and assimilated these things in the buoyant and nevertheless tranquil outgivings of thought and action.

He experienced great difficulty in finding adequate verbal expression for his philosophical ideas. His philosophy often found utterance in technical form. In the early years especially it was often not easy to follow his thought; he gained clarity of verbal expression of his philosophy gradually and through constant effort. Yet this fact is evidence of the unity of his philosophy and his own native being. For him philosophy was less acquired from without, a more genuine development from within, than in the case of any thinker I have known. If he had borrowed his ideas from without, he could have borrowed his language from the same source, and in uttering ideas that were already current, saying with some different emphasis what was already in other persons' minds, he would easily have been understood. But his mind was deeply original—in my contacts and my judgment the most original mind in philosophy in the America of the last generation. From some cause of which we have no knowledge concerning genuinely original minds, he had early in life an intuition, an insight in advance of his day. Of necessity, there was not ready and waiting for him any language in which to express it. Only as the thoughts of others gradually caught up with what he felt and saw could he articulate himself. Yet his native vigor was such that he never thought of ceasing the effort. He was of such a sociable nature that he must have been disappointed by the failure of others to understand him, but he never allowed it to discourage his efforts to make his ideas intelligible to others. And while in recent years his efforts were crowned with success, there was no time in which his mind was not so creative that anyone in contact with it failed to get stimulation; there was a new outlook upon life and the world that continued to stir and bring forth fruit in one's own thought. His mind was germinative and seminal. One would have to go far to find a teacher of our own day who started in others so many fruitful lines

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of thought; I dislike to think what my own thinking might have been were it not for the seminal ideas which I derived from him. For his ideas were always genuinely original; they started one thinking in directions where it had never occurred to one that it was worth while even to look.

There was a certain diffidence which restrained George Mead from much publication. But even more than that there was the constant activity of his mind as it moved out into new fields; there were always new phases of his own ideas germinating within him. More than any one I have known he maintained a continuity of ideas with constant development. In my earliest days of contact with him, as he returned from his studies in Berlin forty years ago, his mind was full of the problem which has always occupied him, the problem of individual mind and consciousness in relation to the world and society. His psychological and philosophical thinking during the intervening years never got far from the central push of his mind. But his mind was so rich and so fruitful that he was always discovering new phases and relations. He combined in a remarkable way traits usually separated—a central idea and unceasing growth. In consequence he was always dissatisfied with what he had done; always outgrowing his former expressions, and in consequence so reluctant to fix his ideas in the printed word that for many years it was his students and his immediate colleagues who were aware of the tremendous reach and force of his philosophic mind. His abounding vigor manifested itself in transcending his past self and in immediate communication with those about him. His mind was a forum of discussion with itself and of sharing discussion with those with whom he had personal contact. I can not think of him without seeing him engaged in untired discussion with himself and others, turning over and over his ideas and uncovering their hitherto unsuspected aspects and relations. Unlike, however, most minds of intense vigor, he had no interest in imposing his mind on others—it was discussion and discovery that interested him, not the creation of his own mental image in others.

No reference to his abounding and outgoing energy would be anything like adequate that did not allude to the range and breadth of his intellectual interests. His grasp and learning were encyclopedic. When I first knew him he was reading and absorbing biological literature in its connection with mind and the self. If he had published more, his influence in giving a different turn to psychological theory would be universally recognized. I attribute to him the chief force in this country in turning psychology away from mere introspection and aligning it with biological and social facts and conceptions. Others drew freely upon his new insights

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and reaped the reward in reputation which he was too interested in subject-matter for its own sake to claim for himself. From biology he went on to sociology, history, the religious literature of the world, and physical science. General literature was always his companion. His learning without exaggeration may be termed encyclopedic. But perhaps only a few are aware of his intense love of poetry. It is only within the last few days that I became aware from members of his immediate family of not only his appreciation of poetry, but his capacious retentive memory. He knew large parts of Milton by heart, and has been known to repeat it for two hours without flagging. Wordsworth and Keats and Shakespeare, especially the sonnets, were equally familiar to him. Those who have accompanied him on his walks through mountains, where his physical energy and courage never flagged, have told me how naturally and spontaneously any turn of the landscape evoked from him a memory of English poetry that associated itself with what he saw and deeply felt in nature. An accurate and almost photographic memory is rarely associated with a mind that assimilates, digests, and reconstructs; in his combination as in so many others, Mr. Mead was so rare that his personality does not lend itself to analysis and classification.

George Mead's generosity of mind was the embodiment of his generosity of character. Everything in the ordinary and extraordinary duties of life claimed him and he gave himself completely. I am sure it never occurred to him that he was sacrificing himself; the entire ethics of self-sacrifice was alien to his thought. He gave himself so spontaneously and so naturally that only those close to him could be aware that he was spending his energy so freely. So, too, while he was extraordinarily tolerant and charitable in his judgments of persons and events, I am confident it never occurred to him that he was so. His tolerance was not a cultivated and self-conscious matter; it grew out of the abundant generosity of his nature. He had the liveliest interest in every social problem and issue of the day. If at times he tended to idealize, to find more meaning and better meaning in movements about him than less generous eyes could see, it was because of the same outgoing abundance of his nature. While his insight was keen and shrewd, one can not associate anything of the nature of cynicism with him. Henry Mead has told me that the phrase which he most associates with his father when any social problem was under discussion is, "It ought to be possible to do so and so," and having seen the vision of possibility his mind at once turned to considering how the possibility could be realized. His extraordinary faith in possibilities was the source of his idealism.

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I shall not try to give any idea, even an inadequate one, of his philosophical conceptions; this is not the time nor place. But there are three phases of it which are so intimately associated with his own natural being, his instinctive response to the world about him, that I can not forego mentioning them. Every one who knew him philosophically at all is aware of his interest in the immediate aspect of human experience—an interest not new in literature, but new in the form which it took in his philosophy. I am sure I am not wrong in connecting this interest, so central in his whole philosophy, with his own immediate sensibility to all the scenes of nature and humanity. He wrote little, I believe, on esthetics, but in many ways the key to his thought seems to me to be his own intense and immediate appreciation of life and nature and literature—and if we do not call this appreciation esthetic, it is because it includes so much more than is contained in the conventional meaning that word has taken on.

All who have intellectual association with Mr. Mead, directly or indirectly, also know how central was his conception of the "complete act"—the source of whatever is sound in the behavioristic psychology and active philosophy of our day. In the integrated act there is found the union of doing, of thought, and of emotion which traditional psychologies and philosophies have sundered and set against one another. This renovating, this regenerating, idea also had its source in George Mead's own personality. There was no division in his philosophy between doing, reflection, and feeling, because there was none in himself.

Again every one who knows anything about Mr. Mead knows of his vital interest in social psychology, and in a social interpretation of life and the world. It is perhaps here that his influence is already most widely felt; I know that his ideas on this subject worked a revolution in my own thinking, though I was slow in grasping anything like its full implications. The individual mind, the conscious self, was to him the world of nature first taken up into social relations and then dissolved to form a new self which then went forth to recreate the world of nature and social institutions. He would never have felt this idea so deeply and so centrally if it had not been such a complete embodiment of the depth and fullness of his own personality in all its human and social relations to others. The integrity and the continuing development of George Mead's philosophy is the natural and unforced expression of his own native being.

One feels not only a sense of tragic personal loss in the death of George Mead, but a philosophical calamity in that he was not able to extend and fill out his recently delivered Carus lectures.

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But if the publication of his ideas is incomplete and cut short, one has no such sense in connection with George Mead's own life and personality. In all relationships, it stands forth as a complete because integral thing. Would that he might have lived longer with his family, his friends, his students, his books, and his studies. But no added length of years could have added to the completeness of his personal being; it could not have added even to the fullness with which he continues to live in the lives of those who knew him.

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MR. LEWIS'S THEORY OF MEANING

RECENT discussions of the meaning of meaning derive largely from Peirce's famous essay called "How to Make Our Ideas Clear." This essay, which was written for popular consumption, is of course none too precise, but in general its students have found its central point in the following formula, "Consider what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then our conception of these effects is the whole of our conception of the object."

An examination of this formula and its application by Peirce will show that the difficulties of his theory spring from ambiguities and obscurities in the following terms.

(1) What sort of effects are practical effects?

a. Are they sensible effects, in the believer's experience or in all believers' experience or in some believers' experience?

b. Are they "useful" effects, in the sense of desired effects, or supposedly desirable effects? Are they effects upon the believer's behavior or someone else's behavior or all behavior? Are they effects upon other objects of conception? Are they *necessary* effects or accidental effects? Are they effects of the *conceiving* of the object or effects of the *object* if it exists?

(2) What is the object of our conception? Is it a "thing" or a fact? This comes down to the question of the possibility of having a conception of an entity in isolation, aside from a mental image. Should the term "conception" be used both for mental images (if there be any) of things and judgments about the interrelations of things in time and space? This question is not simply one of verbal usage, but involves the theoretical problem of whether so-called mental images and judgments are sufficiently alike in fact as to be called by the same name.

(3) This is, then, the third question. What are *conceptions* or, to use the word in the title of the essay, *ideas?* In order to answer

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this question, it is obviously not enough to take some privately constructed theory of ideas and try to apply Peirce's theory to them but it is necessary to find, if possible, something in what used to be called our thinking of which it makes sense to say that it has meaning and see whether Peirce's theory actually describes it or whether it leads to absurd consequences.

This list of three questions shows at least some ambiguity in Peirce's theory and there are still other questions that might be asked. Most of the literature on the subject since 1878 has been built up by assuming that one possible definition of the terms used by Peirce is the "right" one. Definitions are, of course, arbitrary in the last analysis, but we sometimes call the usual definition the "right" one and when there is general agreement upon a definition no harm is done. Still, words used in philosophic discourse are so notoriously vague and the things and facts they are supposed to name so slippery, that one finds it almost impossible to be sure he has correctly understood any proposition in this field. And by "correctly" we mean "in the sense the author meant it to be understood." The discussion of "meaning" in Mr. C. I. Lewis's *Mind and the World Order,* as one might expect from its author, is almost uniquely free from the vagueness of his predecessors in this field and consequently provides a contribution to the theory in general that is peculiarly valuable.

Mr. Lewis's theory is in the tradition of Peirce. Peirce's object was, of course, to induce people to stop talking about things which they could know nothing about, to stop pronouncing unverifiable propositions. His paragraph on the ethical importance of clear ideas reads like a page from Bacon. Mr. Lewis's whole book is an attempt to achieve the clarity and precision of which Peirce pleaded the cause and though he never grows lyrical about the social good of clarity, he is dominated by a desire for clarity as an end in itself.

We may as well say at the outset that although Mr. Lewis's terminology is preëminently univalent (*eindeutig*) there are occasional discrepancies between his theory of meaning and his use of the word. It is difficult at times to know whether it is not equivalent with "designation" (p. 52), "signification" (p. 53), "interpretation" (p. 55), "connotation" (p. 57), "intention" (p. 60), "denotation" (p. 60), and so on, but I doubt whether such difficulties are an effective bar to understanding the theory as a whole or are serious enough to deserve more than mention.

Mr. Lewis's theory of "conceptualistic pragmatism" makes a sharp distinction between two realms of knowledge, the realm of "experience" and the realm of "concepts." The distinction be-

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tween these two realms is not very different from that of Kant, although their peculiar relationship is explained on what purports to be an entirely un-Kantian basis. The three theses which Mr. Lewis defends are presented to the reader in his preface. They are as follows:

(1) "*A priori* truth is definitive in nature and rises exclusively from the analysis of concepts."

(2) "While the delineation of concepts is *a priori*, the application of any particular concept to particular given experience is hypothetical; the choice of conceptual systems for such application is instrumental or pragmatic, and empirical truth is never more than probable."

(3) "That experience in general is such as to be capable of conceptual interpretation, requires no peculiar and metaphysical assumption about the conformity of experience to the mind or its categories: it could not conceivably be otherwise" (p. x).

The result of these theses, if proved, is that what Kant would have called the form of experience is *a priori* but its matter *a posteriori*. But while what we shall continue to call the mind may analyse forms and discuss their interrelations, the fitting of experience to them is always experimental, tentative, and practical. In Kant they fitted, for after all in Kant there were no objective relations and, strictly speaking, all that could be discovered was what matter fitted into the mind's forms. This is not accepted by Mr. Lewis, as I understand him, for nature consists for him, I believe, in both terms and relations; both can be discovered, but every discovery is guided by rules and criteria which are presupposed.

The preliminary advantage of this point of view is that although it deprives empirical knowledge of certainty, it frees mathematics and logic from uncertainty. The disadvantage is that in giving mathematics and logic certainty, it makes them tautological, and denies the possibility of synthetic *a priori* judgments.

The distinction of two cognitive realms, the empirical and the *a priori* comes down to a rejection by Mr. Lewis of esthesis as knowledge. For him knowledge must involve interpretation and hence a conceptual element. "There is no knowledge," he explicitly states, "merely by direct awareness (p. 37. Cf. p. 38f.). This insistence upon the difference between knowledge and the sensuously given is of such importance not only for an understanding of Mr. Lewis's theory but of the whole pragmatic movement, that it is worth dwelling upon here. That this distinction is believed important by Mr. Lewis is demonstrated by the space he gives it.

Knowledge, then, for Mr. Lewis is the conceptual interpretation of the sensuously given and that interpretation takes time. The

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temporal extension of the interpretative process is what makes the verification of knowledge incomplete and precludes truth by correspondence according to the traditional formulæ. For unless ideas in the sense of sensuous content and ideas in the sense of implicit or possible (if not actual) assertions, are the same, there is correspondence only in the former case between ideas and their objects. Aside from the question of whether there are such entities—i.e., as sensuous content—it is certain that what meaning they might be expected to have is entirely different from that possessed by ideas in the second sense. The specific patch of color before me may be said to mean a red rose, but it would be just as simple to say that it *is* a red rose, unless I have already assumed the existence of an infraperceptual red rose of which it is the sensum. But even with that assumption of a dualism between sense-data and what they represent, the representation consists in the symbol's being simply the effect of a non-given cause, if such language is permitted me. It is certainly not the same relation as that between a red flag and an auction or the name "George Washington" and the man.

It is because of a confusion between ideas as mental content and ideas as interpretations or hypothetical judgments, both of which involve an apparent dualism like that recognized by common sense between symbol and symbolized, that answers to the first question are held to be answers to the second. Thus it would seem to be believed by certain epistemological dualists that the occurrence of a mental content of even the simplest sensory sort, since it is what Mr. Lovejoy has called the vicarious presence of an object different from it, carries with it the information of the object of which it is the vicarious presence. It is precisely that which Mr. Lewis denies, since if the transcendent reference of such ideas—i.e., sense-data—could be read in the sense-data with no more ado than inspection, error would be as impossible as in epistemological monism and disputes about physical objects and the host of suppositious scientific objects would never arise.[1]

It is then only in the case of interpretation or judgment, when something is specifically asserted either about the sense-data or about other entities, that the question of truth or falsity and consequently the question of meaning enters. For the concept is defined by Mr. Lewis as a meaning. It is "that meaning which must be common to two minds when they understand each other by the use of a substantive or its equivalent" (p. 70). That there is such a community of meaning is admittedly an assumption (pp. 70, 72), for the only way in which it can be detected is by the reports of various minds and their subsequent acts. In so far as this meaning is car-

[1] This, of course, does not concern the dualism between present content and extrapolated unpresented content. See *The Revolt Against Dualism*, p. 268f.

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ried by an idea in the sense of a sense-datum, there is no telling whether two people have the same idea—except by introspective reports, which may be unreliable. But that is of no more importance for a consideration of community of meaning than the fact that two symbols as unlike as *cheval* and *horse* may mean the same thing. So long as our definitions and their applications to the presented are alike, we can communicate with one another and share meanings. But how can *A* know that his definitions are the same as *B*'s and that he is applying them in the same way, when their esthetic data are private and ineffable? Mr. Lewis seems to recognize this difficulty for he says (p. 77) that no concept would have meaning "if we could not, through the terms in which that meaning is explicated, get back eventually to concepts which are correlated for us with specific and identifiable qualities of sense." That is, *cheval* and *horse* could not be known to mean the same thing unless the Frenchman and the Englishman correlated the symbols with what turns out to be the same sensible object.[2] It would seem to follow that if a term were correlated on no level of experience with any sensible object, real or imaginary, that it had no meaning.

The two explications of meanings—by definition and by behavior—are of different status. Definitions exhaust the denotations of the terms, but are confined to the realm of concepts (p. 79). Behavior is used almost exclusively in conveying the meaning of a word where the concept itself is already something shared (*Ib.*). This would seem to give us not merely two kinds of things which possess meaning, but two kinds of meaning, the kind of meaning words have and that which concepts have. But nevertheless there must be some priority between them, unless concepts and language are entirely disparate, which of course they are not.

Leaving the meaning of concepts aside—and concepts, be it noted are the relational element in experience—the meaning of words, which seems to correspond to the meaning of the "given," is what the given, sense-datum or percept, suggests of a "practical" nature (p. 49f.). In interpreting this meaning, two relations of the given are revealed, (*a*) that of the immediately presented to further actual or possible experience, and (*b*) its relation to my interest and action (p. 51). These both seem individualistic and one gathers that the meaning of the immediately presented is only social in so far as it accidentally happens to be so. For Mr. Lewis has said, "All that comes under this broad term 'meaning' (unless immediate value or the specificity of sense-quality should be included) is brought to this experience by the mind, as is evidenced by the fact that in this respect the experience is alterable to my interest and my will"

[2] But, as we say, the privacy of sense-data makes this correlation theoretically impossible.

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(p. 51). Thus the sense-datum has in itself as so much color or sound or what not no meaning of any type, but acquires meaning through the use to which it is put. How grossly utilitarian such meaning may be is not indicated by Mr. Lewis, but that it must be tested by the "pragmatic test" of Peirce and James is admitted by him in an important footnote (p. 64f.).[3] But apparently no more is intended than that nouns indicate human purposes rather than human observations. "My designation of this thing as 'pen' reflects my purpose to write; as 'cylinder' my desire to explain a problem in geometry or mechanics; as 'a poor buy' my resolution to be more careful hereafter in my expenditures" (p. 52). At the same time if I refer to your pen as a pen, I do not necessarily do so with any purpose to write, though it is true that this word "pen," originally meaning a feather, has come to mean an instrument. But what has its instrumentality to do with its meaning? "If this is a pen, it can satisfy my purpose to write," is certainly not equivalent to, "If this satisfies my purpose to write, it is a pen," This seems like silly quibbling in this place, but apply it to the cylinder. "If this is a cylinder, it will help explain a problem in geometry"; "If this helps explain a problem in geometry, it is a cylinder." But though only a pen will fulfill a purpose to write in a certain way and only a cylinder will solve certain geometrical problems there is no more reason to make the utility equivalent to the meaning than to make the inherent formal properties of the objects named the basis of their utilities. The cylinder solves the problem because it is a cylinder and the pen writes because it is a pen. If only cylinders and pens fulfill the specific purposes in mind, then it obviously makes no difference whether the object or the purpose is stated as basic. For propositions noting the relation between object and purpose are like definitions and therefore simply convertible.

If, however, this be true, then meanings in behavior are just as analytic and *a priori* as meanings in conceptual thought. For it would either make nonsense to say, "If any writing instrument is a pen, then a pencil is a pen," or else it would be true. If it is nonsense, that is because formal properties are recognized—and not necessarily by use—in an instrument which makes it a suitable instrument, in which case the meaning of a term is not simply practical, but is indicative of observable characteristics which I have been calling "formal." Thus a cylinder has been defined as "the surface traced out by a line, named the generatrix, which moves parallel to itself and always passes through the circumference of a curve, named the directrix." One can see whether a thing is a cylinder or not by applying certain tests. And it is incontestable that if there were

[3] See also (p. 34) the caution against interpreting pragmatism too biologically.

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no way of telling whether things were cylindrical or not, there would be no sense in using the term. But at the same time the only purpose of mine its cylindricity as such could fulfill would be the purpose of applying the tests of cylindricity. It seems to the writer important to bear this in mind, for if all our contact with the world is purposeful then the word "purpose" has lost its selective and specific meaning.

Moreover, by bearing this in mind one may retain the benefits of the pragmatic technique and of operationalism without having to accept the peculiar metaphysics associated with it. I should admit that unverifiable truths and untestable meanings had best be omitted from all discussion. At the same time those who say that the proposition, "If sodium is burned, a yellow flame will be seen," is identical with the proposition, "Sodium is the sight of a yellow flame" seem to me to be talking nonsense. For one can not pretend that the sight of a yellow flame has the atomic weight of 23. Difficulties of this sort are numberless if this strict interpretation of operationalism is adhered to.

It is not entirely clear to what extent Mr. Lewis goes with his pragmatism. Though he maintains that there is a realm of *a priori* knowledge which can not be invalidated by experience, yet he agrees that "the ultimate criteria of the laws of logic are pragmatic" (p. 24). This is based upon the discovery that there is no basis within any logic for choosing it rather than another. Hence the choice must be made on external grounds which "human bent and intellectual convenience" (p. 248) determine. That the purely *a priori* has such applicability, that it may serve human bent and intellectual convenience can surely be no accident. It is true that queer algebras and logics may be invented, but it is not true that they are equally convenient. Their convenience certainly is grounded upon their conformity to experience, as the specific utility of a pen is grounded in its specific makeup. This is admitted by Mr. Lewis when he speaks of definitions in the natural sciences (p. 257). "If definition is unsuccessful, as early scientific definitions mostly have been, it is because the classification thus set up corresponds with no *natural cleavage* and does not correlate with sufficiently important *uniformities of behavior*" (my italics). The natural cleavages would thus seem to be the basis of the utility of the definition. But Mr. Lewis no sooner stated this than he denies it. "The alchemist's definitions of the elements, for instance, are the clue to his indifferent success; the definitive properties pick out amorphous groups which have little significance of further uniformity. Not until such crucial properties as combining weights become the basis of classification is it possible to arrive at satisfactory laws of chemistry.

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The earlier definitions can not be said to have been false; they were merely useless or insufficient to the purposes in hand (p. 257f. My italics).

It is, of course, true that combining weights are determined by certain tests which chemists chose to make and hence are no more essential in the metaphysical sense than the older and more superficial definitory characters. But at the same time they do not constitute definitions which are arbitrary in the same sense that the definitions of "point," "line," and "plane" are arbitrary in geometry. For the constancy of combining weights is the one common property that all elements have; it is not merely assumed that they have it; and though few actual specimens in a chemical laboratory perfectly illustrate the law, they illustrate it to a very high degree. Its convenience is thus explicable and not final. It might have been much more convenient if elements would combine by volume rather than weight, but that consideration has never had much influence upon the elements.

There is no doubt that "the naming, classifying, defining activity is at each step prior to the investigation" (p. 259). It is also true that "we cannot even interrogate experience without a network of categories and definitive concepts. . . . We must first be in possession of criteria which tell us what experience would answer what questions, and how, before observation or experiment could tell us anything" (*Ib.*). All that is granted. But having our preliminary categories and definitive concepts, we set to work to apply them to nature. Sometimes they work; sometimes they do not work. When they do not, we are sure that they are wrong. When they do, we have a suspicion, but no certainty, that they are right. If we have no reason to suspect them, we retain them. If we find them contradicted, we reject them. That is actual scientific practice, as we all know. And though the reasons for accepting a definition or category are pragmatic, those for rejecting one are not. If we have no impulse to apply our categories, then one set is obviously as good as another. But if one were to apply the test of Peirce and James to such categories, then until they were tested at least in imagination by experience they would not even have meaning.

Mr. Lewis seems to feel that the contradiction of the *a priori* by experience is no proof of its falsity (p. 264). We have admitted that its correlation is no proof of its truth. But the two situations are different, both theoretically and practically, and because we may choose to cling to old theories though they begin involved and cumbersome—such as the Ptolemaic system in the seventeenth century—is no reason to cling to them when what they imply is definitely disproved by a crucial experiment. Thus the phenomena

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described in the law of falling bodies may not be accurately explained by Newtonian physics, but merely consistent with it. But we know that if it be true, the Aristotelian physics is false. By a revision of Aristotelian physics we may be able to account for the phenomena as well as by Newtonian physics. But a revised theory is not a theory before revision. And though some men might still cling to the contradicted theory on the ground that all the contradictory experiments were sleight-of-hand tricks or magic, such a person would mean by tricks and magic what normal people mean by natural circumstances.

But even in the case of the most abstract categories—those of logic and geometry—in what sense are they prior to experience? It has been asserted, for instance, that though their genesis is in experience they can not be either validated or invalidated by any empirical situation. Thus "p is either true or false" is true regardless of whether p is actually true or false and in that sense of the word is prior to experience. At the same time both true and false propositions are found even in the crudest empirical judgments, recognized as such by people innocent of all logic.[4] The incompatibility between truth and falsity is again recognized empirically when even children catch each other lying. Were there a third logical value besides truth and falsity in experience, it is certainly highly doubtful whether "p is either true or false" would ever have been postulated. When meaningless propositions and propositional functions were recognized, qualifications to exclude them from the argument were made. It is, of course, true that one can invent a third value and work out a calculus of implication from a trivalent logic. And it is equally true that such a calculus would be logically prior to any implications made by its means. At the same time its very divagation from the bivalent logic we use would be evidence of its experiential origin, for just as one makes the generalization, "All crows are black" from observing crows, so we could assert, "Some crows are not black," in denial of the experiential generalization. It would, let us assume, not be true of experience, but that would not prevent its having an empirical origin.

If we do not grant human nature the power of abstracting, generalizing, contradicting, imaginatively combining, the tentative discoveries it makes in its dealings with the world, then to be sure the use of concepts and categories becomes a mystery. Mr. Lewis is perhaps too content to leave it a mystery. "The question," he says (p. 69f.)," how meaning *can* be objective and shared, when the psychological states which are bearers of this meaning are separate

[4] Mr. Lewis recognizes this difficulty, but he avoids it by the theory of "unconscious meaning," or "meanings implicit in behavior" (p. 85). Whose meanings are they then? The "behavers" or the "behaviorists"?

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existences and not even identical in their qualitative content, is one of the important problems of meaning." And again, "That meanings may have this sort of objectivity is a fundamental assumption of science or of any other intellectual enterprise. . . . There must be meanings which are common to minds when they coöperate in scientific or even in merely practical endeavors. Otherwise the coöperation is illusory; and one cannot escape the question how such common meaning stands related to different minds or psychological states which mean" (p. 70).

Mr. Lewis (p. 71) rejects the Platonistic and neo-realistic answers to this question. He also refuses (p. 72) to resign the problem to the psychologist, since he too must begin by assuming the existence of common meanings like the rest of us. He admits (p. 91) that the possibility of common concepts is conditioned "first, by the fact that we are creatures fundamentally alike, having in the large the same needs and interests and powers of discrimination and relation; and second, that we are confronted by a common reality mediated to us in sense-experience which is comparable." In this passage and in the paragraph following, the coincidence of concepts seems to be based largely on coincidence of bodily reactions in the common reality, and not at all on a transcendental unity of apperception which earlier passages might suggest. But here a question of fact is raised. If our common ways of behaving are not necessarily mediated "by any direct psychological identity of experience" (p. 92), then how in the world would Richard Roe know that his ways of behaving are identical with those of John Doe? For it is perfectly possible for two people to behave alike without knowing it. Indeed John Doe has to be aware of his modes of behavior and of Richard Roe's and of their similarity and the same thing has to be true of Richard Roe. This also seems to be admitted by Mr. Lewis (p. 103), but with no sense of its importance, when he says, "I correctly attribute a certain purpose, like mine, to another if I observe that he performs an act like mine and suppose correctly[5] that it is the result of an intention involving the same congruence between anticipation and result which I find in my own case." But he denies, and perhaps rightly, that one need suppose that "either purposes in general or the content of this act in particular are, as items of immediate experience, identical in his case and in mine, in order to 'understand his purposes'" (p. 103). But if one is not to have identity of immediate experience—and it is hard to see how one could have on Mr. Lewis's theory—one has simply identity of meaning and that is an end of it. But that discovery is not a solution of the problem of common meaning.

[5] The word "correctly," of course, presents the whole problem. How could one test its meaning in this case?

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My point here is that identity of behavior—as so much matter in motion—could never convey identity of meaning, otherwise a wheel on one end of an axle might be said to have a knowledge of its identity of purpose with the wheel on the other end. Mr. Lewis's point is that speech is a form of behavior and apparently that what one form of behavior can do another can.[6] But it is precisely by the fact that language conveys meanings that it is differentiated from other forms of behavior. But to note that is to note the primacy and mystery of meaning, and not to give a theory of it. It may well be agreed that language would be meaningless if its terms could not be correlated with certain bodily movements, for bodily movements are the only way we have of expressing our thoughts. To avoid psychophysical dualism one may say that these thoughts are molecular movements, if one wish, but the fact remains that they have a characteristic which differentiates them from all other movements and which therefore erects a barrier around them and delimits them as a special class. Whereupon your dualism is as good as back again. For what makes these movements of interest to philosophy and psychology is not what they have in common with other movements, but what they do not have in common.

There are then according to Mr. Lewis two kinds of meaning corresponding to esthesis and knowledge, i.e., "the direct non-sharable meaning of reference to some complex of sense-qualities," and "the logical, sharable meaning of further conceptual relations." His theory is largely a polemic, and a justified one in the opinion of the writer of this paper, against founding the one kind of meaning upon the other. He further distinguishes two aspects of logical meaning, (*a*) its apriority, (*b*) its intersubjectivity. Its apriority is evidenced by what amounts to man's ability to handle propositional functions; its intersubjectivity is evidenced by the identity between various individuals' behavior including the use of language. But though propositional functions assert nothing about nature, nevertheless the relations symbolized in them are duplicates of, or generalizations from, or contradictions of relations met with in our daily life. Otherwise no implications could be drawn from them whatsoever. We could deduce from the propositional function "$x > y$," the conclusion that "$y < x$." "But we could deduce nothing from the propositional function "$x\ O\ y$" until we know what is popularly called the "meaning" of O. Nor, as psychologists pointed out hundreds of years ago, could we give O a meaning which had no similarity to or definable difference from some experienced type of relation.[7]

As for intersubjectivity, it is true that we should have no ideas of or symbols for common meanings if there were no common be-

[6] For the identity of speech and behavior, see esp. pp. 109ff, 84, 87, 102.

[7] Of course these remarks are stupid if man can not think.

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havior. Similarly there is not much point in discussing theories which have no applicability to behavior, for there would be no telling whether they were true or false and hence they would be meaningless. But it is needless to point out to a logician, least of all to Mr. Lewis, that "*p* implies *q*" does not necessarily assert *p* of the natural world. It may be said that the system which is applicable is no different formally from the queer systems. That may be granted. But in that case its meaning is nil as far as human behavior is concerned. If its meaning is acquired, however, from abstraction of common properties, then it can not be *a priori* except in the sense that a child is logically prior to a parent. In other words one first derives it from experience, organizes it, makes it conform to experience and then calls it logically prior to experience. How does it differ from the *a posteriori?* Only in the degree of analysis and organization. This I recognize as a naïve and perhaps vulgar comment. But philosophy at certain stages of its history has benefited rather than suffered from contact with naïveté and vulgar sense.

If we now turn back to Mr. Lewis's three theses we find that first *a priori* truth is definitive in nature and rises exclusively from the analysis of concepts. But since concepts are uniform ways of behavior, *a priori* truth arises exclusively from our ways of behavior. But what guides us in our analysis we are not told. We find, second, that the application of any particular concept to a particular given experience is hypothetical. But if it is an abstraction of what experience has in common with other experiences, its application ought to be assured in advance and empirical truth as certain as any other, if we apply the right system of concepts. We find, third, that the fact that experience in general is such as to be capable of conceptual interpretation requires no peculiar and metaphysical assumption about the conformity of experience to the mind or its categories; it could not conceivably be otherwise. This is irrefutable if conceptual interpretation is an abstraction of observed uniformities of behavior or experience; for then experience conforms to the mind since the mind conforms to experience. But if that be true, then the "*a priori*" is simply a name for highly analyzed and systematized empirical generalizations. It is too perfect to apply rigidly to experience, but that turns out to be of no moment. Why does it need a special name?

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BOOK REVIEWS

The Practice of Philosophy. SUSANNE K. LANGER. New York: Henry Holt & Co. 1930. Pp. xiv + 225.

As a cogent argument for the importance of the study of forms and consequently for the value of mathematical logic, Mrs. Langer's is an excellent book. Moreover, her theories of the nature and method of philosophy, and particularly of the meaning of meaning, are stimulating and seem to be on the right track. As an introduction, however, either to logic or to philosophy in general, only the chapters on "Philosophical Technique" and "The Trivial Art" can be highly recommended. The whole middle section of the book, on "Meaning," is much too difficult for a beginner, whose perplexities quotations from Wittgenstein and Cassirer will but increase. Again, the survey in the third part of the book of past and present philosophical systems in terms of their basic concepts would be almost entirely lost on anyone lacking a rather thorough training in the history of philosophy. As a starting point for discussion in an advanced class, however, the book would be excellent.

Mrs. Langer's first thesis concerns the nature of philosophy. It can not be correctly described, she urges, as reasoned faith, nor as the vanguard of science, nor as the science of sciences, nor as a synoptic world view. It is rather the pursuit of meaning, in all senses of the word. "A problem is philosophical if it concerns the import of an idea" (p. 37). What does a given proposition or concept mean, is the principal philosophical question. And what a proposition or concept means is what it entails or implies. "To develop the implications of any assertion is to make explicit all the meaning that is contained in it" (p. 33). Philosophy seeks the implications, the logical connections of meanings, whereas science is concerned with the connections of facts. The various parts of philosophy may be called the rational sciences. Logic and mathematics are the best developed of these rational sciences, but ethics, esthetics, metaphysics, pursue the same ideal, each striving to reveal all the propositions in its field as implications of a few clearly determinate notions.

It is unfortunate that, in an attempt to be elementary, Mrs. Langer does not defend this conception of philosophy as the pursuit of meaning from the usual objections to such a view, objections of which Mrs. Langer must be fully conscious. For instance, the question at once arises, can not the physicist tell us the meaning of the concept "electron," and the chemist that of the concept "vinegar," better than the philosopher? To reply by urging that philosophical inquiry is concerned with general or fundamental concepts but raises

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new difficulties. What is meant by a general or fundamental concept and how general or fundamental must a concept be in order to be the proper subject for philosophy? The reviewer is inclined to believe that such questions can be avoided by distinguishing between the *a priori* and the empirical treatment of concepts and propositions, and by limiting the task of philosophy to the former. But in any case, how Mrs. Langer would meet such difficulties should have been made explicit.

The next chapter, "Philosophical Technique," gives an excellent and not overly complicated explanation of the nature of abstraction, of the formal structures it reveals, and of the resultant knowledge of the possible and the impossible as well as of the general. The following chapter, "The Trivial Art," contains a clear, concise presentation of the nature and limitations of Aristotelian, idealistic, and pragmatic logic, and perhaps the best short exposition available in English of symbolic or mathematical logic, its nature, the forms of which it treats, and its tremendous importance as the science of forms *par excellence*. By the happy substitution of "propositional form" for "propositional function," Mrs. Langer makes obvious what so many introductory students find mysterious, and the notions of "relation form" and "system form" follow as a matter of course.

By far the most interesting part of the book is the whole middle section on "Meaning." Mrs. Langer begins by looking for the abstract logical pattern of all meaning situations and she finds it in a triadic relation between a symbol, that which is symbolized, and an interpretant. The situation is always that for some *c*, *a* means *b*. A word, a name, a thought, a concept, a natural sign, a quality, in fact, "anything that may be distinguished, that is a member of any class of entities, may be a term in the relation of symbol and object" (p. 109). Symbol and object are always members of different classes; for example, a word, which is a sound or a mark, means, say, a table, which is a physical object. When there is a mere correlation between an individual in one class and another individual in another class, we have simple *denotation*—one thing is a proper name for the other. In order for a symbol to be descriptive it must have some formal structure in common with the object it symbolizes. For example, the sign *S* on a highway is a descriptive symbol of a reverse curve, because it has itself the structure of what it symbolizes. Again, to a person understanding the English language, though ignorant of the words "Washington" and "Virginian," the proposition "Washington was a Virginian" would mean at least that something was a member of some class. Since symbols embody many different structures, they can mean different objects to different in-

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terpretants. Meaning is relative to an observer of some structure common to both symbol and object. Similarly, with different choices of basic concepts, different structures embodied by an object can be described. "Any system which fits the real experience exactly and leaves none of its structural properties indeterminate is an adequate description. From this it follows that there can be several adequate descriptions of reality" (p. 138). "Truth is the relation which holds between a symbolic structure and any one of its possible objects" (p. 139). It applies only to descriptions, not to mere denotations. "If we say, 'This is a chair,' we use the word 'chair' not as a proper name, but as an abbreviation of a descriptive symbol" (p. 139).

Such an account of the general nature of meaning calls up scores of questions which Mrs. Langer answers only implicitly if at all. Thus most of her examples are of denotative meaning and one asks at once what about connotative meaning? What part do concepts play in meaning? Isn't the real situation when we say "This is a chair," that the word "chair" is simply a name for a definite concept or form? It may be that some descriptive symbol could be found to express this form, but none such is necessary for the word commonly signifies the form directly. In such cases it is clearly not the word which is true or false of reality, but the form itself, which is either exemplified or not. Two chapters later some of these points are touched upon (pp. 154–155). Mrs. Langer there admits that words may be the names of intricately membered concepts, and that concepts may serve as keys or principles of translation so that symbols need not look like their objects. But the tremendous importance of concepts for meaning seems to deserve more explicit attention than that accorded them in these scattered later references.

The chapter on "Insight" is very suggestive, dealing as it does with a sort of meaning usually considered too elusive for treatment by logicians. Many forms embodied in nature are so complex that we do not understand them discursively and have no names for them. We may dimly grasp at such forms by means of "intensive symbols," say, myths. A myth gives another embodiment to a complex form which we dimly apprehend but can not abstract. Thus, perhaps, music embodies in its peculiar medium the pattern or structure of the emotional life—a pattern too complex to be stated as yet in discursive form. Thus an artist by means of another embodiment of it can make "contagious" a form so complex that a scientist can not express it discursively.

The last section of the book begins with an analysis of the great classical systems of philosophy in terms of their basic concepts rather than in terms of their propositions, even their primitive propositions.

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The subsequent evaluation of contemporary philosophy and the final glance into the future are much less convincing. Nevertheless the book leaves one genuinely persuaded that the most important task of philosophy, as well as the most difficult, is really the discovery of fundamental and very general forms; and one can only hope that Mrs. Langer, leaving henceforth to lesser minds the writing of introductions, will be disposed further to devote to this task her own not inconsiderable talents.

CHARLES A. BAYLIS.

BROWN UNIVERSITY.

Liberty. EVERETT DEAN MARTIN. New York: W. W. Norton & Co., Inc. 1930. Pp. x + 307.

The general thesis of this book is that contemporary liberalism in America is confused by combining two different and even incompatible strains of thought, having diverse origins and representing divergent scales of value. The first is the classic or humanistic conception of proportion and harmony, growing from the moral and political ideals of fifth-century Athens and receiving its most adequate statement in the *Ethics* of Aristotle. For this moral philosophy goodness is broadly identical with wisdom; it is the outgrowth of reason applied to the practical problems of living and it aims at self-discipline and individual responsibility. With this the author identifies also the liberalism of the bills of rights, the effort to set up legal safeguards for specific immunities and to make government a limited and responsible agent for the preservation of these liberties. Against this first conception of liberty Mr. Martin sets his second, which originated largely in the egalitarianism of Rousseau and through the operation of economic, religious, and political causes has largely resulted in a transvaluation of the values of the older liberalism. The second conception is romantic and emotional rather than intelligent. It stresses instinct and spontaneity rather than reason and discipline. It looks upon human nature as innately good and it aims at a general and unspecified liberty which in operation means the dominion of mass action and mob psychology. In general the first type of liberalism stands for the leadership of wisdom and excellence and is necessarily aristocratic; the second stands for the prevalence of folk-ways and the dominance of mediocrity and is therefore democratic.

Though this thesis is developed in a series of historical chapters dealing with liberty in Athens, the Christian idea of liberty, liberty in the Renaissance, and the contrasted ideals of the Whig liberals and Rousseau, it is pointed by the author's just disgust with the failure of liberalism in America since the War. The objects of his

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well-merited scorn are the anti-evolution bills, the confiscation of books by customs inspectors, the prosecution of reputable authors at the behest of prurient snoopers, the obscurantism of the fundamentalists, the narrowness and intolerance of prohibitionists, and the subservience of immigration officers and courts to the fanatical demands of hundred percent. Americanism. In this connection one can only wish that he had extended his catalogue of the sins of so-called democracy by the inclusion of an even more serious class of cases. Against the self-styled moral reformers our best defense is the fact that they are fundamentally ridiculous, even though they are incapable of seeing it. The effective denial of constitutional rights in labor disputes, the use of the machinery of the law to preserve the unlawful privileges of employers against the lawful rights of their employees, is vastly more dangerous just because no humane man can laugh at it. Mr. Martin is perhaps too much afraid of confounding humanism, which he reveres, with humanitarianism, which he abhors. But the case is really covered by the liberalism of the bills of rights.

With any definition of liberalism you wish, the last ten years of American politics are not very satisfactory. But this is not quite the same as saying that Mr. Martin's general diagnosis of American illiberality is correct. His thesis is that the present-day enemy of liberty is the mob, the rabble, the masses, the crowd, the incompetent and half-educated majority, who by the weight of their mediocrity are stifling the intelligent and cultured minority. Like the standardization of a machine age, of which we have heard so much, this is no new indictment, either of America or of democracy. But is there in fact sound evidence for it? The question is not whether democracy ought to sit in awe-struck silence at the feet of cultured humanists, but whether the cultured few are in fact any more inhibited by living in a modern democracy than they have been by many other societies. It is not easy to see why a man who has something worth while to say need be prevented from saying it merely because most persons like better to go to a movie than to listen to him. To be sure, Mr. Martin will say that American life is dominated by an excessive valuation of material comfort, which is probably true, and he will add that this overvaluation *is* democracy. But again, where is the evidence? Venice was highly commercialized and Burckhardt at least believes that this diminished the value of Venetian scholarship, but Venice was certainly not a democracy.

In the historical chapters also one can not help wondering at the amazing simplicity of the formula by which Mr. Martin explains the greatness and the decline of nations. Fifth-century Athens was glorious until democracy caused it to run after the false gods of

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imperialism,—neglecting the fact that Athenian imperialism took place under aristocratic leadership. "The absolute despotism of the Caesars was in fact the robbery and enslavement of the public by low-grade politicians," a revolution made possible by the victory of the proletarian party—neglecting the fact that the principate produced in the Roman law the most enlightened and liberal system of jurisprudence that existed down to quite recent times. The Renaissance produced a glorious, though brief, flowering of individual liberty—neglecting the fact that it produced also the divine right of kings and the absolute monarchy. John Locke was a liberal because he was a humanist—neglecting the fact that practically every element of his political philosophy had been current coin in the theologico-political controversies of the French and English civil wars. The Whig liberalism of the bills of rights was in fact no such bookish affair as the humanist would have us believe; it was produced by much the same sort of power politics, of minorities pushing to protect their interests and gain their advantage, that is so shocking to humanists nowadays.

It is doubtless not amiss to point out that liberty implies responsibility and that morality is largely a matter of intelligence and knowledge. But is it not hopeless to base a defense of liberty on the hypothesis—for it is not a fact—that the population can be divided into a few wise men and a large number of fools? This was certainly not the spirit of the liberalism of our bills of rights, aristocratic as it was in practice. And is it not a little simple-minded to believe that in the past aristocracies consisted of the wisest and best men, while our own barons of finance and industry are merely the spume cast up by a proletarian ocean? And if we grant that "That society will be relatively most free in which people have best learned the lesson of minding their own business," are we any farther forward in deciding what is each man's own business? And even if it be true that, "Resort to legislation should be *the very last* remedy proposed for the removal of an abuse," is there any assurance that legislation will be invoked in those cases where it really is an effective remedy?

GEORGE H. SABINE.

OHIO STATE UNIVERSITY.

The Growth of Reason. A Study of the Rôle of Verbal Activity in the Growth of the Structure of the Human Mind. FRANK LORIMER. New York: Harcourt, Brace and Co. 1929. Pp. xii + 231.

This book is highly symptomatic of the development within the field of social psychology of a school of behavioristic thinking concerned with the logic of language symbolism. The author is him-

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self a behaviorist, largely of the Watsonian school, using the concepts of implicit behavior and tensional systems. His basic thesis is "that the processes and organization of communication are continuous with other physiological and social processes, and that the evolving structure of intellectual activity (including the *forms* discovered in logical analysis) is a function of the total growth of life both prior to and subsequent to the rise of verbal activity" (p. 149). He thus regards the language and thought processes as adjustment mechanisms which arise out of the natural mechanisms of the organisms, are continuous with them, and are conditioned to them under the stimulus of environing or adjustment situations. In fact, he does not segregate symbolic or thinking (implicit) behavior from either the instinctive biological processes on the one hand or from the environing contact and adjustment technique on the other. Indeed, one might say, if I interpret him rightly, that mind (implicit behavior) and logic begin in physiology and include the adjustment technique of that part of the environment with which one's behavior becomes identified or by which it is conditioned.

Intelligence thus falls into the pre-verbal and the verbal or symbolic, which in turn is greatly expanded outward in the behavior. Pre-verbal intelligence forms may be grouped as simple reflex behavior, specialized reactions of the nervous system (instinctive or learned), and the more complex differentiation of objectives based on perceptual patterns. At this last point verbalization is likely to begin, at least in human beings. Words, of course, grow out of the babble of children and their symbolism or meaning is conditioned through contact with a language environment. Symbolism must have its rules, both to keep it in functional order and to make it communicable. Hence, syntax, grammar, logic, ritual, thought systems, philosophy, scientific methodology, and all the other extensions of implicit behavior into the stored culture and organizational devices which constitute modern or civilized adult intellectual activity.

The author is, of course, interested in the application of his analyses, particularly in their applications to life and education. He emphasizes the fact that training in thinking (the functional utilization of the symbolization processes) is not a matter primarily of exercise in formal logic. It begins in the learning of language itself in the kiddy-coop and expands with the expansion of language and other implicit and explicit behavior contents. "*School education* is a continuation and development of the same methods that are fundamental in nursery education. Logical methods of thinking are best developed in the coöperative treatment of concrete problems, where children participate with adults who bring well-tested principles to bear in the control of their thinking. Thus children

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gradually acquire essential symbolic formulas not in irrelevant contexts, but in integral relation to the types of experience in which they are the most valuable. Thus the organization of the children's symbolic processes is effected, through open discussion, selected tradition, and objective experiment, in socially instrumental forms rather than by haphazard associations and in emotional complexes" (pp. 191-2).

The author has not so much broken new ground in this analysis as he has expanded and made more specific previous analyses and has indicated further applications.[1] This is a very fruitful field for the analysis of human behavior.

L. L. BERNARD.

WASHINGTON UNIVERSITY.

Humanistic Logic for the Mind in Action. OLIVER L. REISER. New York: Thomas Y. Crowell Co. 1930. Pp. x + 326.

The author of the present textbook of logic is one of the many who hold logic to be of interest practically as well as theoretically. Indeed, he is convinced that the chief value of logic must be sought for in its influence on the lives and habits of those who have been introduced to its study. "The problem of logic is the problem of making people intelligent, of making social action reasonable" (p. 6). And the only way by which man may be made more intelligent is that of making him cultivate that capacity which primarily distinguishes him from the other animals—the ability to think about thinking.

The author holds, however, that logic so far has failed to exert the influence on its students which by right ought to belong to it. "Courses in logic have not functioned very effectively in promoting human thought. Education in general has not improved the amount and quality of thinking in any considerable degree" (p. 17). But this, the author hastens to point out, "does not mean an admission of defeat. It sets forth a challenge to our present educational system" (p. 17). And the present work is thus to be regarded as an attempt to answer this challenge by giving to teachers of logic a textbook which will help them to transform their students from golf-enthusiasts into genuine lovers of wisdom.

How far the author has succeeded in his highly laudable ambition is, of course, not so easy to decide. I rather imagine that each reader would answer this question in his own peculiar manner. But one might perhaps venture the assertion that all hopes of finding impersonal guidance for anything as personal as human thought have

[1] Much the same ground is covered, for example, in the reviewer's *Introduction to Social Psychology*, 1926, especially in Chs. X and XI, although more briefly and with various differences of emphasis.

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so far met with disappointment. And it may be added that the usefulness of the present work for the classroom seems limited for reasons quite distinct from the doubts that may be entertained about the possibility of combining logical analysis with the missionary spirit, as suggested by the author, into an entirely satisfactory whole.

It is, of course, true that "one of the most important functions of education is to teach people to think" (p. 42). One may even agree with the author that it is the business of education "to make the world a decent place in which to live" (p. 42), as well as with the further assertion that the hostility against the "preaching" philosopher is due to an inconsistent and irrational prejudice, since "we are all preachers, more or less" (p. 43). But there is a much greater danger than the author seems to have realized, that the reforming logician may mistake his own pet prejudices, whatever they may be, for logical verities of a high order—a danger from which I fear the author has not altogether escaped.

But a more serious criticism may be made of the present work than those already made. The book is in many ways much too advanced for a beginning student. It is doubtless true that a certain knowledge of logical problems and difficulties is of value even to a beginner in logic, but such a wealth of reference to controversial and highly technical problems as the author provides in a casual way is sure to bewilder the average student in a most undesirable manner. The author tries to do justice to the logical conservatives and to the logical radicals, championing the formal logic against its critics on the one hand, and maintaing an open mind towards the newer theories of logic and psychology on the other. But in this attempt to do justice to all sides, he suffers the fate of all those who attempt to mediate between conflicting factions, and thus fails to satisfy any of the parties to these controversies. But a discussion of these controversial questions would call for a much greater amount of space than a review like this may legitimately demand.

SVEN NILSON.

UNIVERSITY OF OREGON.

Précis Raisonné de Morale Pratique. ANDRÉ LALANDE. Paris: Félix Alcan. 3d ed., 1930. Pp. xii + 87.

Absorbed in controversy, philosophers are prone to overlook their underlying agreement on certain ethical principles, common also to the great thinkers of the past, irrespective of religious creed or metaphysical system. For, just as in physics varying theories are based on universally observed facts, so in philosophy, according to M. Lalande, we are offered tentative hypotheses seeking to systematize ethical judgments of undisputed validity.

The purpose of this book is educational. In it M. Lalande briefly

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presents such "practical moral truths" as met with the unanimous endorsement of the members of the *Société française de philosophie.* The third edition differs from the first in form only; an ordered series of propositions takes the place of questions and answers. An introduction precedes the treatment of "general rights and duties," while a concluding section on "morals and education" seeks to give specific application to general rules. Reprinted as an appendix is an essay on *Les principes universels de l'éducation morale,* which serves to clarify the philosophy implicit throughout M. Lalande's discussion of the moral rules and principles he considers indisputable.

Man, according to M. Lalande, is both an "individual" and a "moral personality." As an individual he tends to subordinate others to the satisfaction of his desires. Human society, however, is only made possible through the operation of a reverse tendency to "assimilation." Human beings are moral personalities in so far as they are capable of guiding themselves by "reason," of judging from that disinterested point of view which unites them with their fellows. The development of moral personality is the fundamental moral aim, an aim which, as adapted to the present state of society, may be expressed as follows: "Transformer la lutte et l'interdépendance naturelles des individus, . . . en un accord des esprits et des volontés fondé sur une même connaissance du vrai, sur un même amour du beau et sur le développement commun de la personnalité" (pp. 44, 45).

The restricted purpose of this book, and the authoritative revision to which it was subjected before publication, render extended criticism superfluous. One suggestion may, however, be hazarded. M. Lalande speaks, it is true, of rules of conduct as perfectible signs of moral dispositions, of the need for moral growth and for the scientific spirit. But, without abandoning his conviction that the new shoots of moral growth must spring from the trunk and branches of established principles, might he not have given more explicit recognition to an experimental attitude in ethics? The educational effectiveness of this book would surely be increased by greater emphasis on the moral life as an adventure in which all are responsible for the intelligent building of the future society.

Una B. Sait.

Scripps College.

JOURNALS AND NEW BOOKS

Giornale Critico della Filosofia Italiana. Anno XII, Fasc. II. Filosofia e scienza: *Giovanni Gentile.* La realtà spirituale e il problema dell'oggetto (contin.): *Gallo Galli.* Saggio sulla dottrina di Bacone (contin. e fine): *Giovanni Tinivella.* Francesco Maria Zanotti e i suoi scritti filosofici: *Luigi Fabris.*

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SCIENTIA. Vol XLIX, N. CCXXIX–5. Axiome, empirische Gesetze und mathematische Konstruktionen: *O. Hölder.* Júpiter: *J. Comas Solá.* Eredità ed evoluzione: *P. Enriques.* Dynamic Psychology: *H. C. Warren.*

Sunderlin, Charles A.: Mysticism of Relativity or The Physical Universe. A Myth. Los Angeles. 1931. 22 pages. 50 cents.

Aall, Anathon: The Hellenistic Elements in Christianity. (Three Lectures delivered at the University of London.) London: University of London Press, Ltd. 1931. viii + 92 pp. 3/6.

Bjerre, Poul: The Remaking of Marriage. A Contribution to the Psychology of Sex-Relationships. Translated by T. H. Winslow. New York: Macmillan Co. 1931. viii + 257 pp. $2.00.

Brunet, Pierre: Introduction des Théories de Newton en France au XVIII siècle. Vol. I: Avant 1738. Paris: Albert Blanchard. 1931. vii + 355 pp. 55 fr.

Chang, Sherman H. M.: The Marxian Theory of the State. With an Introduction by John R. Commons. Chester, Pa.: John Spencer, Inc. 1931. xv + 230 pp. $2.50.

Edman, Irwin: The Contemporary and His Soul. New York & London: Jonathan Cape and Harrison Smith. 1931. vii + 191 pp. $2.50.

Kraft, Carl F.: Can Science Explain Life? Washington, D. C.: 1931. 94 pp. $1.00.

Krüger, Gerhard: Philosophie und Moral in der Kantischen Kritik. Tübingen: J. C. B. Mohr (Paul Siebeck). 1931. vii + 236 pp. 13.80 M.

Leisengang, Hans: Lessings Weltanschauung. Leipzig: Felix Meiner. 1931. xi + 205 pp. 7.50 M.

NOTES AND NEWS

We have received the following Preliminary Announcement:

The annual meeting of the Eastern Division of the American Philosophical Association will occur at New Haven late in December. Yale University will be the host.

The program will be made up as usual. Members who have papers to present should communicate at once with the secretary, giving an idea of the subject matter of the proposed paper. It is urged that final manuscripts be in by November 1st. A later announcement will give details of time and place of meeting.

F. S. C. NORTHROP, Secretary,
1891 Yale Station,
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Volume XXVIII. No. 6. March 12, 1931.

Report of the California Meeting of the American Philosophical Association. ARTHUR E. MURPHY.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 7. March 26, 1931.

Francis Bacon and Contemporary Philosophical Difficulties. JOHN STORCK.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 8. April 9, 1931.

Kant's Philosophy of Peace and War. A. C. ARMSTRONG.

Immanence-Transcendence. JOHN WRIGHT BUCKHAM.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 9. April 23, 1931.

The Place of Repression in Morality. CONSTANCE RATHBUN.

On Defining "Existence." DURANT DRAKE.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 10. May 7, 1931.

Moral Freedom and Power. A. MYRTON FRYE.

The Problem of Gravitation in Aristotle and the New Physics. PHILIP MILLER KRETSCHMANN.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 11. May 21, 1931.

Logical Positivism. ALBERT E. BLUMBERG and HERBERT FEIGL.

How a Logic of "Propositions" Fails of Complete Generality. HENRY BRADFORD SMITH.

Book Reviews. Journals and New Books. Notes and News.

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Directory of American Psychological Periodicals

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American Journal of Psychology.—Ithaca, N. Y.; Cornell University.
Subscription $6.50. 624 pages annually. Edited by M. F. Washburn, K. M. Dollenbach, Madison Bentley, and E. G. Boring.
Quarterly. General and experimental psychology. Founded 1887.

Pedagogical Seminary and Journal of Genetic Psychology.—Worcester, Mass.; Clark University Press.
Subscription $7.00. 600 pages annually. Edited by Carl Murchison and international co-operating board.
Quarterly. Child behavior, differential and genetic psychology. Founded 1891.

Genetic Psychology Monographs.—Worcester, Mass.; Clark University Press.
Subscription $7.00 per volume. Two volumes annually, 600 pages each. Edited by Carl Murchison and an international coöperating board.
Monthly. Each number one complete research. Child behavior, differential and genetic psychology. Founded 1925.

Psychological Review.—Princeton, N. J.; Psychological Review Company.
Subscription $5.50. 480 pages annually.
Bi-monthly. General. Founded 1894. Edited by Howard C. Warren.

Psychological Bulletin.—Princeton, N. J.; Psychological Review Company.
Subscription $6.00. 720 pages annually. Psychological literature.
Monthly. Founded 1904. Edited by Samuel W. Fernberger.

Psychological Monographs.—Princeton, N. J.; Psychological Review Company.
Subscription $6.00 per volume. 500 pages. Founded 1895. Edited by Raymond Dodge.
Published without fixed dates, each issue one or more researches.

Journal of Applied Psychology.—Baltimore; Williams & Wilkins Co.
Subscription $5.00. 400 pages. Founded 1917.
Quarterly. Edited by James P. Porter and William F. Book.

Psychological Index.—Princeton, N. J.; Psychological Review Company.
Subscription $4.00. 300–400 pages. Founded 1895. Edited by W. S. Hunter.
An annual bibliography of psychological literature.

Archives of Psychology.—Columbia University Post Office, New York.
Subscription $6.00. 500 pages per volume. Founded 1906. Edited by R. S. Woodworth.
Published without fixed dates, each number a single experimental study.

Journal of Abnormal Psychology and Social Psychology.—Eno Hall, Princeton, N. J.
Subscription $5.00; foreign $5.25. Acting Editor, Henry T. Moore.
Quarterly. 432 pages annually. Founded 1906. Abnormal and social.

Psychological Clinic.—Philadelphia; Psychological Clinic Press.
Subscription $3.00. 288 pages. Edited by Lightner Witmer. Founded 1907.
Without fixed dates (9 numbers). Orthogenics, psychology, hygiene.

Journal of Educational Psychology.—Baltimore; Warwick & York.
Subscription $4.00. 540 pages. Founded 1910.
Monthly (9 numbers). Edited by Harold O. Rugg and coöperating board.

Comparative Psychology Monographs.—Baltimore; Williams & Wilkins Co.
Subscription $5.00. 500 pages per volume. Edited by W. S. Hunter.
Published without fixed dates, each number a single research. Founded 1922.

Psychoanalytic Review.—Washington, D. C.; 3617 Tenth Street, N. W.
Subscription $6.00. 500 pages annually. Psychoanalysis.
Quarterly. Founded 1913. Edited by W. A. White and S. E. Jelliffe.

Journal of Experimental Psychology.—Princeton, N. J.
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THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND THE SCIENTIFIC METHOD

A GREAT deal has been written about the scientific method in psychology. Unfortunately psychologists have not always fully appreciated the fundamental characteristics of this method. The philosopher, it appears, if we are to judge from the meagerness of his contribution to the progress of a scientific psychology, has failed to grasp and emphasize those characteristics of the scientific method which have made it so productive in the physical sciences during the past few centuries.

As for the physicist himself, the author and master of the method, he has been so thoroughly fascinated by the trees to the exclusion of the forest that he has not been able to tell the psychologist much about the forest. And the psychologist, looking with admiration if not envy across the fertile fields of physical research, has not been notably successful in identifying the factors contributing to that coveted fertility. He has erred often in assuming that the essence of the method consists in the employment of instrumental technique, not realizing apparently that the instruments were only tools of the method.

What, then, is the scientific method? Before an answer may be attempted we must first formulate the purpose of science. Directly or indirectly science has as its purpose the control of events. And such control is made possible by a knowledge of the sequential relationships of certain events. We do not say cause and effect relationships, for, as we shall point out, the results obtained by the use of the method imply no force or necessity in the nature of the sequences. Science, then, is primarily interested in acquiring knowledge concerning the sequential relationship of events. This statement offers nothing original or novel. It is one which is often made by both the philosopher and the scientist. But as it stands it is not of much value, for although the layman might think he knows what is meant by an event the term to the scientist is hazy and not very useful. Let us then proceed to define an event as a change. What it is that changes we shall discuss later.

If now we substitute this definition in our formulation of the purpose of science we may say that the aim of science is to discover the sequential relationships of changing conditions. And, having given

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the aim or purpose of science, we are ready to inquire how this aim is achieved, that is, what it is that characterizes the scientific method. Being concerned with changes, the first task of science is to discover what it is that changes. The mathematician has given us a name for these changing entities. He calls them variables. The scientist then must first identify his variables. In physics this is relatively easy. As a matter of fact, most of his variables are readily identified, such as, pressure, volume, weight, resistance, temperature, etc. The variables involved in the phenomena studied by the psychologist are much more complex and hence more difficult to identify or to define conveniently and usefully.

But these variables are not free floating detached entities. They are characteristics or qualities of an object. Thus the physicist finds his variables in the objects which he studies. A description of an object therefore involves the enumeration of the variables in it. And here we may pause to point out the intimate relationship between the phenomena of the physicist and those of the psychologist. First let us ask what criteria are used in identifying the variables of a given object. In general a variable is isolated because it affects a given sense modality. We may take for example several of the familiar variables of physics and refer them to their corresponding sense modalities, such as force and kinesthesis, temperature and cutaneous thermal sensitivity, sound and audition, light and vision, etc. Since spatial attributes or variables like distance and volume are of more general significance they will be reserved for a separate discussion.

The correspondences indicated above briefly emphasize the thoroughly subjective character of the physicist's phenomena; that is, the fact that all his data are derived merely from sense impressions. This fact was emphasized by Karl Pearson a quarter of a century ago. "Science," says the great methodologist, "deals with conceptions drawn ultimately from sense impressions, and its legitimate field is the whole content of the mind."[1] Our purpose in here calling attention to the fact is not to disillusion the materialistic physicist, nor to inspire the floundering psychologist with the thought that after all his phenomena are no less tangible or accessible than those of his more successful colleague in the so-called physical sciences. Rather we take pains to point out the subjective character of the physicist's data because this fact is intimately related to the subject of spatial variables, which subject we shall discuss presently.

But first the concept of the object in which reside the varying attributes needs further clarification. The term "object" has perhaps not been advisedly selected. Here it is not used in opposition

[1] Pearson, K., *Grammar of Science*, p. 66.

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to subject in the sense that a subjective and objective dichotomy of universes of discourse is implied. More appropriately we might use the term "structure" or borrow the word "system" directly from the physicist. The physicist employs the term in exactly the same manner as we have used the word "object." He speaks of isolating a system. And by isolation he means describing it according to certain criteria. We may take a typical example for illustration. Suppose we wish to find the law of tension in a rope which is wound round a post and is just on the point of slipping. We have to do here with a flexible inextensible weightless string wound on a rough circular drum. Consider an arc of the rope. Imagine this arc to be frozen so that we have a rigid body to deal with. We now isolate this system. That is, we describe the magnitude and direction of the forces involved, which are the specific variables in this system.

In general a system may be any complex of variable attributes, although the boundaries of the system are not always easily defined. Sometimes they may be arbitrarily determined. Usually contiguity and spatial localization of the variables is taken as the criterion by which they are regarded as belonging to a unit system or structure. For example, the fact that roundness and whiteness and hardness are all localized in a given position in space is adequate justification for regarding the complex as a unit structure, to wit, a golf ball. This illustration may appear absurdly obvious, but in the study of psychological phenomena logical correlates of the same criteria must be used when defining a unit system, and here the boundaries of the system are much more vague, though none the less important. The structure or unit system in which the psychologist finds his variables involves, of course, the individual organism. But it also involves his environment, so that the unit system is composed of certain variable aspects of his immediate environment as well as his variable responses.

To summarize briefly our discussion thus far, we may say that science is concerned with the control of events. Such control is made possible by a knowledge of the sequential relationships of changing conditions where these changing conditions take place with reference to given variable attributes of a bounded system. The first task of science is to bound the system by describing or defining the variables within it.

With this summary before us we are in a position to recur to the subject of spatial variables. It may be pointed out at once that what the physicist has regarded as objective realities are no more than spatial, or what amounts to the same thing, quantitative correlates for other variable sensory phenomena such as weight, sound, light,

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etc. He speaks somewhat naïvely of light waves and sound waves as though they were something quite apart from the sensory phenomena with which they correlate. As a matter of fact, it is not the so-called objective character of the air or ether waves which has made the wave theory of such importance in physics, but rather the fact that waves have length and amplitude, and are therefore amenable to that most general, rigorous, and systematic treatment of which the human organism is capable, namely, mathematical analysis.

But we are not yet quite ready to indicate why the sort of correlates to be found for variable attributes should be of such a character as to be amenable to mathematical manipulation. First we must inquire more precisely into the nature of a variable. This brings us to the concept of continuity, a concept the utility of which has not always been appreciated by the psychologist, and not always properly emphasized by the physicist and the philosopher. We may illustrate this defect by indicating several types of inductive methods described by the philosopher and by citing stock illustrations of each. One of these methods is known as the "Method of Concommitant Variation" and may be thus defined; "If an antecedent and a consequent vary concomitantly, although no other relevant circumstance has changed, then that antecedent is a condition of that consequent."[2] As an example may be suggested the relation between the temperature and volume of a substance.

Another of the inductive methods as conventionally given is the "Joint Method of Agreement and Difference." "If a group of several instances in which a phenomenon occurs have nothing relevant in common except the absence of that antecedent, then that antecedent is a condition of that phenomenon." As an example, "Darwin observed that many plots of land containing all of them plenty of earthworms, although otherwise very different in character, became covered increasingly with vegetable mould, whereas, on the other hand, many plots of land not essentially unlike the former plots as a whole, but deficient in earthworms, did not get covered with vegetable mould. He therefore concluded that the vegetable mould is due to the agency of the earthworms."[3]

Now, while in the two types of inductive method illustrated above a different verbal analysis is set forth, yet it is obvious that the illustration used in the latter method is just as truly an example of concomitant variation as is the former. In the first case we say that a change in the amount of heat brings about a change in the amount of space occupied, while in the latter we say that a change in the amount of earthworms brings about a change in the amount of vegetable mould.

[2] Wolf, A., *Scientific Method*, p. 61.
[3] *Ibid.*, p. 70.

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In the first instance our related variables are temperature and volume, while in the second they are worms and vegetable mould. Thus the philosophical differentiation of one method into two but serves as a barrage to obscure the essential characteristics of the scientific method. But much as this idle analysis deserves the anathema of the groping methodologist we are here primarily interested in pointing out an important characteristic which the variables involved in both illustrations have in common, namely, that of continuity. Another way of saying this is that the variables may take any quantitative value within certain limits. That is, we do not say either there is heat present or there is none, either there are worms or there are not; rather there is a certain amount of heat present or a certain number of worms, and likewise for the other variables in the respective systems.

The importance of this obvious but often neglected characteristic of a variable lies in the fact that only when it is continuous can it be treated mathematically. But this continuous character of variation has little practical significance unless it can be measured. And measurement implies the existence of a unit of measurement. Once the scientist has identified or defined the variables of the system which he wishes to investigate he must select a unit of measurement so that the variation of the attributes of the system may be quantitatively indicated.

A unit of measurement to be useful, must be stable. That is, it must retain a constant value from one time to another, and throughout the range of variation. If it does not exhibit this stability its instability must follow some known principle as time or the variable changes. The units of the physicist, such as centimeters, grams, seconds, degrees, etc., are familiar enough. The psychologist also employs temporal units, but that is about the only unit of which he can be at all confident. When he uses a test item as a unit of intelligence he has no assurance whatever that one item has the same value as another. Other devices have been resorted to in order to stabilize the unit of measurement, but rarely with any flattering degree of success. A great deal more ingenuity is required in establishing units of measurement for the variables in psychological phenomena than for those in physics. Offhand we may attribute this difference to the fact that the phenomena of the former are much more complex. The attributes of the systems investigated by the psychologist are often highly complicated, being themselves composed of more simple variables.

The psychologist should attempt to so determine a unit of measurement that for the various probable changes in the simpler undefined component variables the unit will remain relatively stable

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as the composite variable changes. Often he is not aware of the necessity for imposing this condition upon the unit of measurement. To the extent that it is possible to identify and measure constituent variables of more complicated variables, to that extent the task of constructing a stable unit for the composite variable becomes less arduous. This is true, of course, because whenever a sub-variable of a composite variable is identified, that sub-variable may be detached from the complex and treated as a separate variable, while the complexity of the composite variable is reduced. The problem, then, is to determine which is the more difficult, to construct a complex stable unit with which to measure a composite variable, or to reduce the composite variable to simpler ones for which simpler units of measurement may be constructed. In this discussion we can do no more than suggest the importance of the unit of measurement, essential as may be the logic of constructing units which will remain relatively stable for composite variables.

The first step in the scientific method is the isolation of a system by the identification of the variables determining that system. The second step is the selection or construction of a unit of measurement by means of which a specific value of the variable may be spatially or quantitatively expressed. Before proceeding to the third step we shall suggest how an appreciation of the significance of the first two may greatly simplify analysis. The number of phenomena studied by the scientist may be materially reduced when the analysis is made with careful attention to variables and units. To illustrate we may refer again to another of the inductive methods known as the "Method of Difference." "If two sets of circumstances are alike in all relevant respects except that in one of them (called the Positive Instance) a certain antecedent is present and also a certain consequent, while in the other (called the Negative Instance) both are absent, then that antecedent and that consequent are related as condition and consequent, that is to say, that consequent will always follow that condition." As an illustration, "if a healthy animal is inoculated with the blood of another animal suffering from anthrax (splenic fever) and contracts the disease, then the inoculation will be regarded as a condition of the infection."[4]

This may be true enough so far as it goes. But let us raise a few questions concerning inoculation and contraction of the disease. First we ask how much blood was inoculated. Second, if one-tenth as much blood had been inoculated would the animal have contracted the disease? Third, suppose the same amount of blood had been inoculated into a second, and a third, and a fourth animal, would these all have contracted the disease? Obviously, we are here intro-

[4] Wolf, A., *Scientific Method*, p. 57.

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ducing the concept of variables and units of measurement. One of our variables is volume of blood and the other is number of diseased animals. The unit of measurement for the first may be cubic centimeters or any other spatial unit, while for the second it is a single diseased animal. To say that an animal contracted splenic fever when inoculated with an arbitrary amount of infected blood is of little more importance than to say that a sparrow flew in through the window and a member of the household died sometime thereafter. But we attain a degree of scientific rigor and precision when we say that a change in the amount of blood inoculated brings about a change in the number of animals contracting the disease. And we do more, we eliminate one of the inductive methods, so that the method becomes again that of Concomitant Variation. Thus our categories are simplified.

Suppose, however, that we do not wish to vary the amount of blood inoculated. But we repeat the experiment a number of times with the same amount of blood, and find that a given number of animals contract the disease. Here we have a special case of the Method of Concomitant Variation in which the variation is zero, and we find it quite unnecessary to make a separate classification of the method.

Often in the less accurate sciences our concepts become needlessly confused and our categories unpardonably multiplied simply because we fail to take into account the fundamental importance of the concept of variation. A great deal of time and effort is spent in finding new categories and splitting up old ones, and then the classifications do not admit of satisfactory relational analysis. We exhibit a pitiable lack of insight in distinguishing between a general variable attribute and special values of that variable. Sometimes it is not easy to recognize two phenomena as separate and specific values of the same variable. But often this is due to the fact that our variables are too poorly defined, or perhaps not at all. And sometimes, even if the variable itself is adequately described, the unit of measurement is so obscure that it would be impossible to identify a given phenomenon as a particular value of that variable. A variable should be so defined and its unit of variation so determined as to include the greatest possible number of phenomena as special values of that variable. Conversely a phenomenon should be so described as to be representable as a given value of the fewest possible number of variables.

Thus far we have devoted most of our attention to a consideration of the measurement of change. The term "measurement" has assumed an almost hallowed significance for a great many investigators in social sciences. Lord Kelvin said "when you can measure

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what you are speaking about and express it in numbers you know something about it, but when you can not measure it, when you can not express it in numbers, your knowledge is of a meagre and unsatisfactory kind." The accurate sciences are noted for the success they have had in measuring precisely their phenomena. Workers in the normative sciences have noted this success and have shown some appreciation of its importance in the progress of the physical sciences. But though the relation of successful measurement to the progress of a science should be obvious enough, much of the work in psychology would indicate that the nature of this relationship has been at times overlooked. Certainly it is not enough to measure accurately a given phenomenon, be it the light wave of a given color or some specified character trait. And let us keep in mind when we speak of measuring a phenomenon we imply nothing in the way of actually finding its objective magnitude—whatever that may mean. We mean simply that we are finding quantitative correlates for changes in that phenomenon.

The usual way of saying that science is interested in acquiring knowledge with reference to the sequential relationship of changing conditions, is that it attempts to discover general laws. Hence, a law is no more than a description of this sequential relationship. It can never be more than that. We avoid the use of the expression "cause and effect relationships" because this implies a necessity in the nature of the sequences which can exist only if we define necessity as a high degree of probability of the occurrence of a certain set of sequences.

But before we proceed further in our discussion of the relationship of changing conditions let us attempt to harmonize the concept of sequential relationships with that of concomitant variation. It will be remembered that of several of the inductive methods we have indicated a preference for that of concomitant variation. This preference, of course, is the usual one in contemporary scientific method. It implies, evidently, that when one variable changes some other variable changes also. And more, that these respective changes go on at the same time. When we speak of a sequence of events we imply that a change in one variable is followed by a change in another. That is, there is a time interval between the change in one variable and the change in the other. By usual convention the variable which changes first is considered the cause of the second. Apparently no one has taken the trouble to point out that concomitant variation is only a special case of sequential variation where the time interval is zero. Thus sequential variation is a more general concept than concomitant variation. In most psychological problems the nature of the formulation and the statistical

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treatment assumes that the variation is concomitant. In economics sequential variation is sometimes assumed and the appropriate time interval is determined by statistical devices which we shall not go into here. We may indicate, however, that these devices are of a trial and error character, and that no systematic technique has yet been devised for determining the time interval which most adequately expresses the relationship under consideration.

Science then identifies its variables and by selecting or constructing units of measurement finds quantitative correlates for them in order to show according to what system or principle a change in one or more variables effects a change in another. When we say that it shows the change to take place according to some system or principle we have in mind certain mathematical concepts which express the type of the relationship. The simplest type of relationship possible is, of course, a linear or straight-line relationship. This means that for a change in one variable there is a proportionate change in another. Whenever the Pearson correlation coëfficient is calculated from psychological data (or any data) it is always assumed that a change in one of the variables is accompanied by a proportional change in the other. Hence, most of the research in psychology which has gone far enough to attempt to demonstrate any laws has assumed proportional variation. Another way of saying this is that most of the quantitative work in psychology assumes the simplest law possible and that the data from the work itself merely tests the validity of this assumption.

Mathematically, there are various types of relationships which may apply to psychological phenomena. One variable may vary as a given power or root of another, or as a logarithmic, trigonometric, or exponential function of the other. Or there may be complicated combinations of these various types of relationships. The determination of the particular type of relationship is one of the most difficult steps in the formulation of a general law. Once the type of relationship is determined it is easy enough to verify the degree of accuracy with which it describes the facts or data, but the data give no unequivocal clue to the nature of the relationship, expressed in terms of mathematical operations. However, the data might enable one to determine what sort of function would approximate a fit, but that is not the same thing.

One might say that the type of relationship is determined by making certain hypotheses and assumptions—usually that is the way the issue is evaded—but closer investigation will show that there are certain definite methods of approach. Sometimes the isolation of the system and the description of the variables involved will suggest the form of the relationship. Sometimes, if the relationship of

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two variables to another variable is known the form of the relation between the first two may be determined. Or, in general, if the relationship of a series of variables to another series of variables is known, and relationship between the members of the second series is also known, then it is often possible to derive the form of the relation between the members of the first series. Again, it may be that the relation between specific values of certain variables is known. Then it is sometimes possible to determine the general form of the relationship. In all of these cases the hypotheses are of a mathematical form, the form being derived by mathematical manipulation and combination of simpler forms. Usually, after the development of the more complex relation assumptions are introduced which simplify it. These assumptions are of a quantitative nature, and take the form of treating inequalities as equal, or variables as constants, or small magnitudes as zero, or large magnitudes as infinity.

Perhaps one of the most fertile fields for research in methodology and at the same time one requiring the most ingenuity is that of developing and systematizing general methods of approach for the determination of types of relationships. Various specific devices have been employed by the theoretical physicists, but no satisfactory attempt has been made to organize a general method of approach.

Besides the identification of variables, the selection of units of measurement, and the determination of the type of relationship existing between the variables, there is yet one more essential step to the scientific method. That is the determination of the degree of accuracy with which the formulation describes the relationship. This is a vital part of the method, though one which has not received the emphasis it deserves. The statistician has a measure of this degree of accuracy which he calls the standard error of prediction. It is a value which can be determined when the form of the relation and the data are given.

A consideration of the significance of this measure leads us to observe that several formulations may conceivably be employed to describe the relationship between the same set of variables. Ultimately the criterion determining which formulation shall be selected is the magnitude of the standard error of prediction. In actual practice the standard error of prediction will never be zero. But the more accurate the formulation and the more precise the measurements the smaller will be this error.

It should be noted that throughout our discussion nothing has been said about the experimental method. Often it is assumed that the experimental and the scientific method are the same. The experimental method is but an aid to the scientific method, experi-

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mentation being only incident to the accumulation of data to be used in the method. Nor is control an essential characteristic of the method. Often it is stated that when the scientific method is employed one variable is varied while all the others are kept constant. The scientific method is much more general than this. If it were not it could not be employed by the economist or the astronomer. It is not necessary to be able to vary a given attribute at will nor to hold all others constant. It is necessary, however, that the variation which takes place be noted, and this is just what happens when the economist gets his data from industrial and government records. It is the record of the variations and not their control which is prerequisite to the use of the scientific method. The advantage of experimental control is that the data may often be more easily obtained and may be more adequate for purposes of analysis.

PAUL HORST.

WASHINGTON, D. C.

ARE WE MACHINES? AND WHAT OF IT?[1]

IT is one of the curiosities of human nature that great numbers of men and women are apt to become violently excited over the question whether or not they are machines. By all the tests in the psychologists' repertoire these men and women are intelligent enough to be allowed at liberty and entirely competent to conduct the ordinary business of civilized society. Indeed it is usually the more intelligent who are particularly concerned. Yet they seem haunted by a terror that they may suddenly awake to find themselves hopelessly entangled with gears and belts and fly-wheels and vacuum tubes.

It is a curiosity, amusing to a philosopher, and nothing more, because the question is really not at all serious or important. There *are* possibilities about which it is right to be seriously perturbed; but this is not one of them. Any man is justified in being deeply agitated over the bare possibility that he is heir to a fortune, or even that an ancestor fought in the Revolution or occupied a stateroom on the *Mayflower*. These things make a difference. Something is at stake. Life will be one thing if our individual's hopes are realized, another if they are disappointed. But whatever we may finally decide is our relation to gas engines and dynamos, life will remain exactly what it was before the question occurred to us. The whole problem, indeed, is only a little more important and interesting than this other—Is a pretty girl a peach?

[1] Read before the Fortnightly Club of Redlands, Feb. 5, 1931.

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This must be either a very profound and startling observation or else very absurd and foolish. Assertions with which the mass of mankind is in violent disagreement are usually one or the other of these extremes; and this is one of such assertions. It would almost certainly occur to a philosopher that, if human beings are machines, this is nothing new. They probably always have been. The belated recognition of the truth could not change them in any way. Especially it could not make them worse or less than they were. It might lead to a more intelligent lubrication of some of the bearings or a readjustment of some of the loads. All that might be ground for a mild optimism.

But there are lamentably few philosophers. Other human beings worry. To most of them it is plain that the doctrine would be ruinous. Let men once be convinced that they are machines, and over the whole wide world things will never be the same again. The pillars of society will crumble. Morality will collapse. Life will inevitably lose all joy, interest, dignity, or worth.

To a few "Mechanism" is a gospel. In their utterances a humorist can discern a curious reversed evangelism. It has its Billy Sundays and doubtless its Aimee Semple McPhersons. Salvation by Science is proclaimed with jubilant war whoops that lack only a sawdust trail or a sprawling "tabernacle" to recall the old-fashioned "revival."

Dr. Watson, to pick a single shining and amusing example, even outdoes Billy Sunday. With a truly medieval fervor he announces that the Day of the Lord is at hand. He chants a *Dies Irae,* as he contemplates the doom of all other than Behaviorist modes of thought. The day of wrath for the unsaved, however, will be for the elect Behaviorists "Glory for Me." It will be heralded not by trumpets of archangels, but by notices in the press of the endowment of immense laboratories to study how children may be made afraid of rabbits. The Empire of Science is about to swallow up the Kingdoms of the Gods. That is progress—as a Union Station is an improvement on the Parthenon.

It is almost a pity that, in spite of so much fuss and fury, nothing of any real importance is at stake. Whether we call ourselves machines, organisms, or souls, or something else, we are just what we are. Practical problems remain just what they were. Theoretical perplexities persist in as baffling and challenging forms as ever.

Dreadful results *may* follow the acceptance of "Mechanism." But that will be only because we fly into a panic over it. In that event we can blame only the panic for the disaster. On the other hand glorious advances may follow. But again, the doctrine will not deserve credit. We need more laboratories; but "rational

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souls'' or ''thinking machines'' are equally capable of endowing them. All that is needed is that the souls should be rational or that the machines should think. I personally think that a soul would be somewhat *more* likely to endow a laboratory than the most thoughtful of machines. But it is the thinking that is important, the facing of facts, the refusal to fall either into panic or hallelujahs.

A reader of this paragraph may be wondering whether he should marry Rose or Marie. He may even contemplate marrying both! Or should he pay his creditors or take refuge in bankruptcy? Yet again, he may be wondering whether he should buy government bonds or oil stock. These are typical practical problems. Now let him be persuaded that he is a machine. Will he buy the speculative stock, defraud his creditors, or risk the legal and emotional perils of bigamy? Not unless, in addition to being a machine, he is a foolish or dishonest one.

Let a man be as mechanical as the most fanatical Behaviorist (scientific Fundamentalist) might wish him to be. Still he is a machine that is capable of happiness or misery. Moreover he is capable of producing happiness or misery in other mechanisms. At every crisis he must face the question whether, for the kind of a machine he is, one line of operations or another is the better. Machine or soul, his practical problems are the same.

Theoretical problems are no more helpfully illuminated. Assume once more that human beings are machines. Still, they are not locomotives, nor lathes, nor radio sets. They are not cattle. They are not even apes. They are machines of a particular kind. What kind? Press the question, and the answer sooner or later must be—human machines. But what distinguishes human machines from those that are not human? What constitutes humanity? Here we are back where we started. A human machine is just as different from a typewriter or a chimpanzee as a human soul would be—and different in precisely the same ways.

With disarming candor and in a most ingratiating style the distinguished neurologist, Professor Herrick, in his recent interesting volume, *The Thinking Machine,* contends that we have conceived machinery too narrowly and crudely. We have thought machines were only such things as automobiles and printing presses. If we will only enlarge our conception of machinery ''to fit the larger task,'' we shall see that human beings may be machines and yet be human, that the brain may be a machine and yet really think. To help us enlarge our concept he offers us a new definition of a machine. It is, he says, ''a material structure that performs work by natural forces, that moves matter and energy against resistance, that gets its material and energy from natural sources, and that delivers natural products'' (p. 22).

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If this is all that Professor Herrick means by a machine, no one has any occasion to object to being called one. Unfortunately Professor Herrick leaves nothing in the world but machines. He might as well have said, "By machines I mean anything at all." When a term means anything at all, it means nothing in particular. To say that human beings are machines in the sense we are discussing, is simply to say that they live and move in constant interaction with a world of matter and energy. Who would want to argue otherwise?

A humorist can make the matter clearer than a philosopher. Let us construct a parallel argument to show that pretty girls may be peaches. We will admit at the outset that this is a new and disturbing idea, that most people do not believe them peaches, and that grave anxiety may develop as the discussion proceeds. But is not all that because he have had altogether too crude and inadequate ideas of peaches? We have been accustomed to think of them only as fruits that grow on trees at a certain time of the year. But if we enlarge our conception of peaches, all anxieties and objections become groundless. We have only to define peaches in such a way as to include two-legged creatures that walk around at all times of the year, wear skirts, and use lip-sticks. Once we have so expanded the idea, we shall glimpse a profound, indeed a fundamental truth. And we may find a publisher, and even a market, for a book upon our discovery.

When we call human beings machines, a girl a peach, an automobile a boat, the fish that got away a whale—in general, when we call a thing anything but just what it is, we employ a figure of speech. And if we sternly resolve to eschew all metaphors and call things only just what they are, we find ourselves limited to such solemn pronouncements as that "A man is a man," "A girl is a girl." We achieve an unimpeachable veracity, but our remarks are neither interesting nor illuminating.

Metaphors are possible, because two objects are similar in some respects; they are interesting, because the two are strikingly different. A pretty girl does make anyone with the least esthetic susceptibility think of a peach. A real and considerable satisfaction results from making the comparison. But that is precisely because she is not a peach.

When we assert that human beings are machines, we are utilizing a metaphor. It is true or false in exactly the same ways that it may be true or false that a girl is a peach. I do not mean to insinuate that the mechanism metaphor is no more valuable or illuminating than the peach metaphor. It probably is both more valuable and more enlightening, more stimulating to thought, more productive of important discoveries and improvements. But for all that, it is a metaphor.

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So we have only to appraise a metaphor. Nothing more serious is at stake. Humanity is in no danger of losing any important characteristic. Nor on the other hand is humanity to be secured in the possession of any particular prerogative. We may investigate the ways in which human beings resemble steam shovels and cash registers with no need to worry about the destiny of the race. Whether we call them machines, organisms, or souls, human beings are human.

II

Perhaps it is impossible, certainly it is difficult, to define a machine. So capable a thinker as Bertrand Russell, in his debate with Professor Mather, declared, "I do not know what a machine is." It is easy, however, to point out certain fairly definite characteristics of the machines we know and use. And we may classify them as positive and negative meanings of "mechanical" or "mechanism." Machines have certain qualities and lack others. Certain adjectives can be applied to them and certain others can not.

To begin with the positive meanings, machines as contrasted with animals and plants are (1) accurate, (2) regular, (3) and dependable. In all machines, too, there is (4) a certain transparency of relationships. The reason for every movement is at once apparent to anyone with the capacity to perceive it and in the position to do so.

This last is emphatically not true of plants and animals. We may believe that *if* we knew more, we should find their actions as transparent as those of our sewing machines or gas meters. But that is faith. Scientists and Mechanists have as much right to faith as any others—probably more. But neither they nor the religiously devout have any right to call faith knowledge. For the present it is certain that we understand, "grasp," or "see through" our machines, but that the behavior of even so simple an organism as an amoeba is in most respects a baffling mystery.

All these positive meanings are complimentary to human nature, or at least unobjectionable. It is acceptable flattery to speak of a football team as a smoothly working machine, of a runner's machine-like stride, or of the mechanical perfection of some athlete's "form." A bookkeeper or an accountant is entitled to solid satisfaction, when the correctness of his additions can be compared with that of an adding machine. And we may recall that his fellow townsmen used to set their watches by the philosopher Kant.

Accuracy, dependability, efficiency, are highly prized human traits. If to be mechanical meant nothing else, there would be no scandal, no controversy, no anguish of heart. We might even go to the other extreme; and Society, when it sought to confer its supreme

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honor upon some noble personality might devise a new order of nobility of higher dignity than those of the Bath or the Garter—an Honorable Order of Machines.

Transparency, as we have applied the term to machines, may seem a dubious compliment. Psychiatrists are apt to speak of "mechanisms" of character or conduct, whenever they are able to discern any intelligible system or orderly development in the behavior of their patients. Popular fancy tends to invest the psychiatrists with something of the gruesome awe that in the middle ages attended the reputed wizard or the torturer; and the thought of psychological "mechanisms" may arouse a shiver—if not of horror, at least of repugnance.

But the opposite of transparent is opaque. As we have been using terms, that means unintelligible. Why should we wish human conduct or experience to be that? There is nothing noble or admirable in caprice or chaos, in human lives without principles. On the contrary, to be human is to be forever struggling to reduce the chaos of Nature and of our own natures to order and system. In the proportion that this is accomplished, conduct becomes intelligible. In becoming "mechanized" in this sense, it gains rather than loses in dignity. Only a perverse mind can insist that human behavior becomes degenerate as it becomes intelligible.

So far, then, as the positive meanings of "mechanical," "mechanism," or "machine" are concerned, we may conclude that they are high human ideals. Only in exceptionally favorable circumstances do human beings approximate the excellencies of machines. To be "mechanical" in any positive sense is to be fully, ideally, human.

It is altogether different with the negative meanings. When a process is said to be "mechanical" at least five distinct denials are involved. (1) A machine acts without knowledge of itself, its uses, or the effects of its operation. (2) It has no purposes; it does nothing for any conscious reason or to any self-selected end. (3) It has no feelings, neither happiness or misery, no love, hate, or pity. (4) It can not act save in a rigidly determined fashion. And (5) it is unable to adjust itself to changed circumstances.

These negative characteristics of machines are all sub-human. That is why human beings object to being called machines. Any intelligent person will resent an attempt to label him an imbecile. And there is even more reason to resent and repudiate any description of mankind which does not acknowledge and provide for humanity.

It will not help the mechanists' argument to point out that human beings do occasionally act ignorantly, brutally, stupidly, or monot-

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onously. It would not help, even if it could be proved that they generally act so. For men are at least sometimes human. Machines never are. However rare a phenomenon genuine humanity may be, it is distinct from everything that is sub-human. To confuse it with anything of a lower order is simply evidence of muddled thinking.

We must admit that it is difficult to explain purposive or conscious behavior in terms of a mechanistic physiology. That is no reason for denying an obvious and familiar fact. It *is* reason to suspect that our present physiology, and indeed all our present science, is incomplete and many of its conclusions premature. The procedure of true scientists will be to elaborate and refine our physiological, and even physical, concepts until it is possible to provide for such activity. Then we shall have a physiology of conscious, purposing, feeling human beings, not of hypothetical "mechanisms."

And if ever purposive behavior is "explained," no one need feel dismay or disillusionment. It will not be less purposive, less intelligent, or less conscious than it was before it was understood. To "explain" is merely to exhibit the relations in which one fact or event stands to other events or facts. That means enriched insight. If it seems to mean the loss of the fact, something is wrong with the "explanation."

Mechanists are obnoxious, because they are continually insinuating, perhaps unintentionally, that human beings are not human. The instant we see the matter in this light, we can see also that there can be no just ground for anxiety. We can indeed group men with machines in our thinking. There may be some advantages in doing so, as we have already seen. But to do it, we must strip them, in our thinking again, of their distinctively human characteristics. It is as though we were to strip them of their flesh, muscles, and viscera. The one process yields us machines, the other skeletons. Both are legitimate and useful in appropriate circumstances; but neither gives us human beings in their entirety and the rich variety of their full activity.

III

Mechanists usually, however, when they speak of machines do not mean machines. They could not stick to a legitimate use of the term and escape obvious absurdity. What they do mean was probably well expressed by Bertrand Russell in his debate with Professor Kirtley Mather in Chicago in November of 1929.

"I do not know what a machine is. . . . When I say that men are machines, I mean that their bodies obey the laws of physics and chemistry, and that those laws are adequate to explain all their behavior. . . . I do not know what those laws are. . . . Sometime, when we know more, we may understand them."

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In spite of the fact that two or three thousand people paid good money to hear it, it is doubtful whether that statement means anything at all. At most it amounts to two simple and unobjectionable propositions. The first is that men live and function within a world of things. The other, that human behavior, once it is understood, will be found to stand in systematic relation with all other events and processes. The first is a truism. The second is a pious hope.

Mechanists have as much right as any others to pious hopes. But this particular one is no exclusive property of theirs. It is just as strongly held by their opponents. Who can object to the faith in order and system? Only those who for some perverse reason set a premium upon caprice, discontinuity, and disorder generally.

Mr. Russell really surrendered the case for "mechanism," when he admitted that our present laws are inadequate for the explanation of even the simplest facts of human activity. No intelligent person objects to the idea that human behavior and experience can be explained according to *some* laws. But every intelligent person does, and must, object to the assertion that our present physics and chemistry can fully do so.

IV

An interesting contrast is to be observed in the attitude of the "intelligent layman" and the scientist toward scientific or natural "laws." The layman is apt to carry over much of the awe that in his childhood he used to feel for those mighty edicts enunciated amid the thunders at Horeb. The scientists know—and by this time they ought to, for the philosophers have long been telling the world—that their laws are promulgated from no more awful Sinais than scientific laboratories; their tables of stone are only scientific journals. The authors are no deities but men who may have false teeth and flat feet like the rest of us. The laws are not mandates ordering the universe to obey traffic signals. They do not coerce in any way the events or activities of Nature. They are merely reports of how things have so far been observed to act. The layman is apt to speak of their "unalterable majesty and inviolability." The sound is fine but the meaning is nonsense. The "laws" are always being broken. Or, less figuratively, they are always being found incomplete and premature. When that happens, the disconcerting fact is not put in jail, or even on probation. The "law" is amended.

That is how science progresses. Whatever may be the difficulties with the metaphor, science is not built upon "solid foundations of eternal verities." On the contrary its towering structure rests upon the debris of discarded theories; and its inspiring growth is possible because its foundations and every one of its members are forever crumbling.

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The value of any "law" depends upon the range of facts which it summarizes. If "laws" are derived from a limited field of events, it is absurd to expect them to hold unchanged when wider fields are explored. "Laws" which may suffice to describe the movements of planets, the behavior of chemicals in test tubes, or the operation of an aeroplane, have been derived from just such events. Their validity is limited to the events from which they have been derived.

What of human behavior and experience? Were these among the data from which the Law of Gravitation, or Einstein's equations, or Mendel's Law were deduced? They certainly were not. Are we to conclude that behavior and experience are only special cases of much more general formulae? That is perhaps conceivable; but it is violently opposed to all probabilities.

In the science of the future human activities will have a place. In all probability "laws" will be formulated that will enable the happy beings of that time to predict and control and understand the whole course of human life. But that time is not this time. That science will be a very different science from the one which today is only just beginning to chart the coast line of personality. It will be as different from the science of our time as geography today is different from that which was taught before the Americas were discovered, or as modern biology is different from that before Darwin and the general acceptance of evolution.

V

Why are we, so many of us at least, so afraid of science? We seem to fear that from the tangled wires and gleaming brass instruments of the laboratories demons will emerge. As the devils of old robbed men of their shadows or their souls, these modern demons will rob them of their humanity.

It is easy to understand such a terror in the heart of a medieval scholar. It is easy to understand and sympathize with it in a Fundamentalist. But many of the loudest eulogists of science have essentially the same attitude. In rather too gorgeous rhetoric Bertrand Russell laments that science has at last revealed man as only an "accidental collocation of atoms." Did ever a medieval or rabbinical exorcism employ a more mouth-filling and horrific appellation! Ayres calls science a "False Messiah." A host of literary imps are assuring us that the demons have already done their work. Only our invincible "booberie" or a frantic clinging to quickly fading dreams keeps us from realizing our misery and our degradation.

Why is there such timidity in facing facts, such snickering glee at awful discoveries? Why do so many of us dread that the truth, when once we know it, will be *bitter?*

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Is it because in our childhood our curiosity was unwisely repressed? Were too many of us frightened with tales of bears and ghosts and bad men and skeletons in dark closets? Were our early inquiries into the mysteries of sex repelled with such horror that *all* investigation was shrouded with superstitious horror?

Psychoanalysts and psychologists are invited to make what use they wish of these suggestions. But why should we not expect that truth will be *sweet?* It is more in keeping with all the probabilities to expect that man will not be degraded by being linked to Nature in scientific system; but that on the contrary Nature will be illuminated and ennobled by the study of man.

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BOOK REVIEWS

The Nature of Life. Eugenio Rignano. (International Library of Psychology, Philosophy and Scientific Method.) New York: Harcourt, Brace & Company. 1930. Pp. x + 168.

The first part of the book argues that purposiveness is essential to living organisms; the second part sets forth, as mediating between vitalism and mechanism, the author's hypothesis in explanation of this purposiveness. As he states it: "we shall try to prove that our hypothesis as to the nature of life, which we have developed in our preceding works *On the Inheritance of Acquired Characters* and *Biological Memory,* is fully adequate to explain these purposive manifestations" (Introduction, p. x). This hypothesis lies "between the two opposing theories of vitalism and mechanism which, till now, have held the field alone" and "it explains the purposiveness of life on causal and deterministic lines" (p. x).

The nine chapters of Part I are devoted to showing the essentially purposive character of the chief organic processes. Assimilation is a selection of certain substances from the complex mixture taken in as food, and a synthesis of these into the compounds specific for each organism. By this synthesis the organism "reconstructs exactly and exclusively the selfsame substance which was destroyed during the particular process of dissimilation which it has to repair" (p. 6). This rhythm whereby the living body is regularly restored to the "dynamic stationary equilibrium" (p. 8) is never found in the inorganic. Thus life appears as "an energetic synthesizing process *sui generis*" (p. 14); it is "a new form of energy—always obedient to the general laws of energetics, but endowed with well-defined elementary properties different from those of any form of

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energy in the inorganic world'' (p. 14). This energy, the *differentia* of life, the author calls nervous energy; it is indeed ''nothing other than nervous energy properly so-called, even when it is produced by the nuclear discharges of non-nervous cells, whether animal or vegetable, somatic or germinal'' (p. 34). Metabolism is constituted by the fact that ''the discharge of nervous energy caused by the disintegration of the living substance would immediately be converted into a charging current which would reproduce in identical quality and quantity the living substance destroyed in the immediately preceding phase'' (pp. 18–19). Of course the critical reader will here ask why the energy possesses this rhythmic and restorative function; but Professor Rignano seems to regard the function as an ultimate fact. Certainly if nervous energy should turn out to be, as some think, an electrical phenomenon, the way would seem to be open to the mechanist.

To continue the argument of the book: the fact that the organism in early stages ''forms in itself organs which will *later* serve for its conservation'' (p. 24) is clearly purposive. There seems here to be a ''predetermined end'' (pp. 24, 25); and this fits well into the hypothesis of nervous energy. ''According to our hypothesis the specificity of nervous current or discharge which is produced by the sudden decomposition of a given nuclear substance is the same which, functioning later as a current of charge, reproduces the same specific substance'' (p. 32). Thus it would seem (the text is too summary to be quite clear) that the rhythmic return which was assigned to metabolism accounts for the repetition in offspring of the parental structure and behavior. This return to the original equilibrium and pattern is a mnemonic phenomenon (in Semon's sense): ''all the specific accumulations, deposited both in the nuclei of the very varied somatic cells of the different tissues and in the germinal cells are really authentic mnemonic accumulations, fundamentally of the same nature as those deposited in the centres of the grey matter of the brain, which produce by their discharge the psychic phenomena of mnemonic recollection in the strict sense'' (pp. 34–35). Unfortunately the detailed argument is not here given; we are referred to *On the Inheritance of Acquired Characters*. Meanwhile we may note that what is called pure memory is not accounted for in this way; pure memory is no mere repetition of the same discharge, but is the awareness of repetition. In fact it is not clear whether or not nervous energy has a tincture of awareness. The author later says ''Again we have not, with Neumeister, been compelled to introduce any sort of 'psychical thinking' into the chain of physiological phenomena. . . . To postulate at the basis of life such a 'psychical thinking' of which neither the nature nor

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the origin nor the method of functioning is known and which is an unknown much greater than the facts which it is supposed to explain, is to fall into pure metaphysics and to renounce all positive scientific explanation" (p. 132). Yet in the next sentence he speaks of this "special form of energy, endowed with a special, essentially elementary and well-defined property such as that of specific accumulation, from which can be deduced all the purposive manifestations of life, including those of the thinking psyche which are characteristic of mind" (p. 132). Again: "Now this 'faint glimmering of the human psyche' whose presence we must recognize in the smallest fragment of living matter, is nothing else than the special form of energy which we assume as the basis of life . . ." (p. 133). Is the nervous energy then conscious or not? Or is it neither, but a potency which develops into one or both? The only answer I find is on pages 98–99: "*Consciousness,* which so far has constituted the greatest enigma of psychical life, appears to us not as an intrinsic and absolute property inherent in each of the various psychical states, considered apart from the others, but a property extrinsic and relative to each one of them, due to certain modalities of affective reference existing between them." If the reader understands this, he has the advantage of me. It would be better "to fall into pure metaphysics," at least for clarity's sake.

In the remainder of Part I the purposive traits of life are emphasized. Adaptation has not been sufficiently explained by natural selection. Behavior of the lower organisms shows trial and error, but "to try implies an end to be attained" (p. 81). Of course the difficult problem of instinct is rendered less difficult if one accepts with the author the inheritance of acquired traits, but probably most biologists will demur. For the author "the instincts appear to be of an essentially mnemonic nature" (p. 88). Finally, purposiveness obviously belongs to mental activity and social conduct.

Having argued that purposiveness remains inexplicable on physico-chemical grounds, Professor Rignano in Part II shows how his hypothesis mediates between the two extremes of mechanism and vitalism. Accepting teleology, it offers, as vitalism does not, a definite and in a sense verifiable hypothesis; for nervous energy is an identifiable process. This I think the critic must grant; but the position now looks very like materialism (which here is mechanism). We read: "intelligence, will, and the complex working of the mind in general . . . have their own spatial seat, their own material basis, their own energetic potentiality" (p. 127). After all, nervous energy is a purely physical affair; no amount of repetition or cyclical rhythm can turn it into a mental one. He compares it indeed in Chapter II to the ether or to electricity, which are new

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forms from the point of view of the laws of motion. But once more the critic must put the dilemma: either this nervous energy is conscious (and then we have straight vitalism) or it is not (and then we have straight mechanism). There is no third possibility. There is no way of mediating between mechanism and vitalism. Monistic views such as those of Haeckel, Spencer, Avenarius, and the present author, solve the dualism by ignoring it.

The book is concluded with a chapter on "Man's Place in the Universe and the New Morality of the Harmony of Life," which urges that the hypothesis of nervous energy justifies the virtues of social coöperation and the aspiration of man toward finer and nobler human life.

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The Biological Basis of Human Nature. H. S. Jennings. New York: W. W. Norton and Co. 1930. xix + 384 pp.

Professor Jennings has given us the completest summary of the relative importance of "nature and nurture" in the integration of personality yet published from the biological standpoint. Try as he will to be impartial in his summary of the evidence, this book is still a defense of the waning prestige of the old biological dogmas that half a generation ago reigned supreme through their spokesmen —C. B. Davenport, H. H. Goddard, M. F. Guyer, and many others. At that time it was the sociologists against the biological field, with scarcely a deserter from the biological camp. Only H. W. Conn among the biologists had discovered the fallacy of the orthodox hereditarian argument and had proclaimed it in his *Social Heredity and Social Evolution.* E. G. Conklin was beginning to compromise. Several years later Goddard, under the influence of wider contacts, greatly modified his views. In 1924 Jennings, and in 1925 Davenport, published articles in the *Scientific Monthly* acknowledging the overstatement of the orthodox hereditarian position. And now Jennings sums it all up, "in the light of the latest facts," and with a note of apology for what survives. One thing is very notable—for its absence—in this whole intellectual warfare between the sociologists and the biologists. The biologists, nowhere and in no way and never, have given any adequate recognition by name, title, or idea to the work of the sociologists who literally forced them to restudy the evidence and to revise their views on the relative importance of heredity and environment. Yet it is evident that they know of the sociological viewpoint, for they refer to it anonymously—and frequently. In Jennings the reference is to the viewpoint of both the sociologists and the behaviorists, whom he considers environmen-

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talists, and he actually refers by name to Watson, who appears to symbolize for him the behaviorist standpoint. Yet it is quite true that Watson himself abandoned his old instinctivist viewpoint after the sociologists had begun their criticism of the hereditarian dogma.

So much for the setting from which the present book grew. Although popular in form and the result in part of the republication of previous essays, it is systematic in presentation and one may learn from its delightfully written pages the essentials of the latest knowledge which the biologists have to bring to the controversy. For controversy it *is*, and this book is controversial. The new discoveries about the genes are here presented, and the author shows why unit character inheritance is not the rule. He also explains why two feeble-minded parents can have normal children, a thing the hereditarian loyalists of half a generation ago said was impossible. Jennings really does not go much beyond the admission made by Conklin seventeen years ago about environmental influence when he maintains that either the genes or the environment may modify any general trait and that ordinarily it is not possible to determine which is responsible. He gives more weight to the endocrines, because more is known about them; but repeatedly he speaks of the endocrines as being determined by the genes. He admits the influence of vitamins and seems less definitely to imply that even the endocrines may be modified from without. He creates not a little confusion in the thought of some of his readers, and possibly in his own mind, by failing to distinguish adequately between the indirect general and the direct specific influence of the genes upon the development of somatic traits. Probably not even the most rabid environmentalist has ever denied that the genes are a powerful background factor in the development of acquired characteristics as well as the specific determiners of inherited traits. All environmentalists will grant, as a working hypothesis at least, that environment works on a genic or hereditary base. But they contend that having good genes merely gives to the individual the foundation on which specific mental, moral, and social traits may be erected, provided the environment is so organized as to condition these traits in the individual. They hold that the genes are not themselves able to control the development of such traits. Jennings' failure to distinguish between the specific or direct and indirect or general contributions of the genes to personality development leaves his position as much confused as that of some of the sociologists of thirty years ago. These could not distinguish between the concepts of the hereditary or "born" criminal and of the criminal who was so because of constitutional hereditary defect. (It is not always certain now that even the constitution is inherited!) Most, if not all, sociologists

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can now make this distinction. Can not the biologists and psychologists also? The environmentalist certainly would agree with Jennings that "one may show a better knowledge of Latin syntax in consequence of an original difference in the genes" (p. 164), without thereby being led to suppose that the Latin scholar had inherited his knowledge of Latin syntax. The important thing—if a knowledge of Latin syntax is important—is to know where one may secure a knowledge of Latin syntax. Is not the environmentalist safe in assuming that the method is not to be born again physically of other parents, but to seek a teacher and an environment with facilities for Latin syntax study?

Four problems of application confront the author with especial force. He admits little hope from the old program of eugenics, largely because of the difficulty of locating the bad recessive genes. While feeble-minded parents produce one feeble-minded offspring, the great masses of the population who are not feeble-minded produce thirty. Besides, he shows, it would require 68 generations, or 2000 to 3000 years, to reduce the chances of the inheritance of feeble-mindedness to a proportion of 1 to 1000 births under control. But he would not give up all hope of selective breeding, especially among recognized "carriers," and through the location of single-pair defects. Likewise, he does not believe the family will cease to have an indispensable function in society, both biological and social in character. The fact that the insects have substituted group care for family nurture is based on an entirely different set of circumstances from those that obtain in our society. He has an excellent—a statistical—definition of race, as merely the massing of similar types of genes in a population. This is essentially the definition the sociologists have used for a long time. In fact, in all three of these applicational problems, Jennings has come over entirely to the established sociological standpoints, as any reader who knows both fields may readily determine for himself. But when he passes to the problem of emergent evolution, one wonders if he is not here more of a metaphysician than an experimentalist, positing a dualism of mind and matter that does not exist. He states his position with those who oppose the "mechanist" or bio-physical basis of explanation of the emergence of mental, moral, and social traits in society on the ground that such traits can not arise from a mechanical order of the universe. It might be better to attack this question without doctrinaire presuppositions.

It may, however, be said that one may find in this book the best existing statement of the modified position of the hereditarians, still slightly confused in its analysis and terminology, but on the whole gratifyingly clear. But he will not discover in it any ade-

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quate clue to where he may find the environmentalist or "sociological" views which it controverts.

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WASHINGTON UNIVERSITY.

The Person of Evolution. Studies of Instinct as Contributions to a Philosophy of Evolution. W. D. LIGHTHALL. Montreal: R. A. Kennedy & Co. 1930. Pp. 216.

This little book adds to the literary treasures of the universe a new philosophy of evolution. It is an ingenious but sketchy argument for the hypothesis of Superpersonality. Treading lightly and airily the vast ranges of cosmic evolution, Dr. Lighthall everywhere discerns the footprints of that "Directive Power" and "Outer Consciousness," the Person of Evolution. First, he establishes the Independence of Instinct as "a single element coterminous with all the reactions of living substance, including their psychical concomitants." A second and correlative postulate is: "the law of action towards joy and in avoidance of pain." In this cosmic law, we find a new key to the baffling problem of teleology, namely, the persistent production of joy in nature. "Nothing is more striking in advancing biology than this persistence through unimaginable intricacies: Nature, within the body, sometimes uses a chemical, sometimes a nerve, or other device, or even invention of thought, to pursue its end, and its ends are always resolvable into joy." This increase of joy and conquest of pain, and not mere contrivance or even cosmic Order, is the true basis of teleology. Thus is Schopenhauer's argument inverted into an evolutionary optimism. The next postulate is the "axiom that every conscious unit has a power of coalescing its consciousness with, and of decoalescing it from, that of other conscious units or groups, under certain conditions." The author is well aware of the difficulties of this "colonial view" of individuality, but presents copious inductive evidence from "the snowy intricately woven tubes of *Euplectella speciosa*" and the "sparkling crystals of calcite embedded in fossil shells" to the marvellous interglandular directorate of the human organism and its sensitiveness to the waves, rays, and rhythms of the whole universe. "The beauty of the woods, the stars, the hiding wild flowers, the innumerable snow crystals, the ocean corals" are among the countless expressions of the affective harmony which forms the "daylight view" of the universe. Transcending all imperfect analogies between organism and society is the universal organicity of life and nature.

The result is a superficially brilliant eclecticism, displaying a critical acquaintance with the writings of Spencer, Butler, Kidd, Durkheim, Bergson, Hobhouse, Whitehead, Smuts, Jennings, and

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practically the whole literature of evolutionary teleology. Unfortunately, the author's facility in showing how his own theory diverges from these authorities and what it is not, far exceeds his own fertility of construction. To be sure, the freshness of undisciplined synthesis is sometimes a relief from the wearying subtleties of the school-trained philosopher. Moreover, the critic's complex is to be more exacting of others' theories than his own. But when all is said, one can only regret that Dr. Lighthall did not spend ten more years out of the evolutionary eternity patiently evolving his rich teleological insights into a rigorously logical argument. Ever pertinent is Pascal's dictum that if he had had more time, he would have written less.

D. Maurice Allan.
Hampden-Sydney College.

JOURNALS AND NEW BOOKS

Archiv für Geschichte der Philosophie. Band XL, Heft 1. Geschichte und System der Philosophie: *H. Rickert.* Der pädagogische Gedanke in Platons Höhlengleichnis: *E. Hoffmann.* Die "materia primordialis" in der Schule von Chartres: *H. Flatten.* Die kosmische Anthropologie des Bovillus: *B. Groethuysen.* Hegels Ästhetik als System des Klassizismus: *H. Kuhn.* Kuno Fischer und Karl Rosenkranz: *H. Glockner.* Jahresbericht 1930 über die *deutschen* Schriften zur Patristik: *A. Dyroff.* Jahresbericht 1930 über die *englischen* Schriften zur Antike: *G. Dawes Hicks.* Jahresbericht 1930 über die *italienischen* Schriften zur Antike: *G. Calogero.*

Archivio di Filosofia. Anno 1, Fasc. II–N. 2. La doppie personalità di Taleté: *E. Bodrero.* La libertà della ragione e della fede: *G. Tarozzi.* La Dottrina Cattolica e la critica razionale: *B. Varisco.* Il Diritto categoria dell'ordine: *F. Orestano.* Alcune posizioni della filosofia etico-giuridica contemporanea: *G. Perticone.* Idealismo Cristiano: *L. Stefanini.*

"Robert Bridges and George Santayana. Notes on the Testament of Beauty." Harold A. Larrabee. *Faculty Papers of Union College,* Vol. II, No. 2, pp. 77–95. 1931.

"The Pattern of Abilities among Adult and Juvenile Defectives." Harold Ellis Jones. *University of California Publications in Psychology,* Vol. 5, No. 2, pp. 47–61. Berkeley, 1931.

S. Agostino. Pubblicazione Commemorativa del XV Centenario della sua Morte. Con Scritti di Agostino Gemelli, A. Masnovo, Paolo Rossi, Mario Casotti, Romano Amerio, Silvio Vismara, Francesco Pelluzza, A. Galli, U. A. Padovani, Andrea Oddone, Francesco Olgiati, Melchiorre Roberti, Emilio Albertario, G. Soranzo, Aristide

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Calderini, Carlo Calcaterra, Giorgio Nicodemi, Giovanni Galbiati. Preceduti dall'Enciclica di S. S. Pio XI. Pubblicati a Cura della Facoltà di Filosofia dell'Università Cattolica del Sacro Cuore. (Rivista di Filosofia Neo-Scolastica, Supplemento Speciale al Volume XXIII, Gennaio 1931.) Milano: Società Editrice "Vita e Pensiero." 1931. v + 510 pp.

Brann, Hellmut Walther: Nietzsche und die Frauen. Leipzig: Felix Meiner. 1931. 214 pp. 6.5C M.

Hirsch, N. D. M.: Genius and Creative Intelligence. Cambridge, Mass.: Sci-Art Publishers. 1931. 339 pp. $4.50.

Lindworsky, Johannes: Experimental Psychology. Translated from the German by Harry R. De Silva. New York: Macmillan Co. 1931. xix + 406 pp. $3.75.

Pacotte, Julien: La Pensée Technique. (Bibliothèque de Philosophie Contemporaine.) Paris: Félix Alcan. 1931. 154 pp. 15 fr.

Reid, Louis Arnaud: A Study in Esthetics. New York: Macmillan Co. London: George Allen & Unwin, Ltd. 1931. $5.00. 415 pp.

Reiner, Hans: Phänomenologie und Menschliche Existenz. Halle (Saale): Max Niemeyer. 1931. vi + 26 pp. 1.20 R.M.

Swihart, Altman K.: Since Mrs. Eddy. New York: Henry Holt & Co. 1931. xii + 402 pp. $3.00.

NOTES AND NEWS

Dr. Houston Peterson, lecturer in philosophy at Columbia University, was awarded the Butler Medal in silver for his book *The Melody of Chaos*. The Butler Medal is awarded annually in silver or bronze by Columbia University to that graduate of Columbia University who has, during the year preceding, shown the most competence in philosophy or in educational theory, practice, or administration, or who has during the time made the most important contribution to any of these.

The Ninth Annual Congress of the Australasian Association of Psychology and Philosophy, with the coöperation of the Melbourne University Philosophical Society, met May 21 and 22, 1931, at the University of Melbourne.

Among the papers read were the following: Presidential Address—"Science and Society" by Professor John Anderson; "Explanation" by Professor H. Tasman Lovell; "Realist Psychology" by G. F. McIntosh; "Value" by Professor W. R. Boyce Gibson; "The Inheritance of Acquired Characters" by Professor W. E. Agar.

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There is no similar journal in the field of scientific philosophy. It is issued fortnightly and permits the quick publication of short contributions, prompt reviews, and timely discussions. The contents of the last six issues are as follows:

Volume XXVIII. No. 7. March 26, 1931.

Francis Bacon and Contemporary Philosophical Difficulties. JOHN STORCK.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 8. April 9, 1931.

Kant's Philosophy of Peace and War. A. C. ARMSTRONG.

Immanence-Transcendence. JOHN WRIGHT BUCKHAM.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 9. April 23, 1931.

The Place of Repression in Morality. CONSTANCE RATHBUN.

On Defining "Existence." DURANT DRAKE.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 10. May 7, 1931.

Moral Freedom and Power. A. MYRTON FRYE.

The Problem of Gravitation in Aristotle and the New Physics. PHILIP MILLER KRETSCHMANN.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 11. May 21, 1931.

Logical Positivism. ALBERT E. BLUMBERG and HERBERT FEIGL.

How a Logic of "Propositions" Fails of Complete Generality. HENRY BRADFORD SMITH.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 12. June 4, 1931.

George Herbert Mead. JOHN DEWEY.

Mr. Lewis's Theory of Meaning. GEORGE BOAS.

Book Reviews. Journals and New Books. Notes and News.

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American Journal of Psychology.—Ithaca, N. Y.; Cornell University.
Subscription $6.50. 624 pages annually. Edited by M. F. Washburn, K. M. Dollenbach, Madison Bentley, and E. G. Boring.
Quarterly. General and experimental psychology. Founded 1887.

Pedagogical Seminary and Journal of Genetic Psychology.—Worcester, Mass.; Clark University Press.
Subscription $7.00. 600 pages annually. Edited by Carl Murchison and international co-operating board.
Quarterly. Child behavior, differential and genetic psychology. Founded 1891.

Genetic Psychology Monographs.—Worcester, Mass.; Clark University Press.
Subscription $7.00 per volume. Two volumes annually, 600 pages each. Edited by Carl Murchison and an international coöperating board.
Monthly. Each number one complete research. Child behavior, differential and genetic psychology. Founded 1925.

Psychological Review.—Princeton, N. J.; Psychological Review Company.
Subscription $5.50. 480 pages annually.
Bi-monthly. General. Founded 1894. Edited by Howard C. Warren.

Psychological Bulletin.—Princeton, N. J.; Psychological Review Company.
Subscription $6.00. 720 pages annually. Psychological literature.
Monthly. Founded 1904. Edited by Samuel W. Fernberger.

Psychological Monographs.—Princeton, N. J.; Psychological Review Company.
Subscription $6.00 per volume. 500 pages. Founded 1895. Edited by Raymond Dodge.
Published without fixed dates, each issue one or more researches.

Journal of Applied Psychology.—Baltimore; Williams & Wilkins Co.
Subscription $5.00. 400 pages. Founded 1917.
Quarterly. Edited by James P. Porter and William F. Book.

Psychological Index.—Princeton, N. J.; Psychological Review Company.
Subscription $4.00. 300–400 pages. Founded 1895. Edited by W. S. Hunter.
An annual bibliography of psychological literature.

Archives of Psychology.—Columbia University Post Office, New York.
Subscription $6.00. 500 pages per volume. Founded 1906. Edited by R. S. Woodworth.
Published without fixed dates, each number a single experimental study.

Journal of Abnormal Psychology and Social Psychology.—Eno Hall, Princeton, N. J.
Subscription $5.00; foreign $5.25. Acting Editor, Henry T. Moore.
Quarterly. 432 pages annually. Founded 1906. Abnormal and social.

Psychological Clinic.—Philadelphia; Psychological Clinic Press.
Subscription $3.00. 288 pages. Edited by Lightner Witmer. Founded 1907.
Without fixed dates (9 numbers). Orthogenics, psychology, hygiene.

Journal of Educational Psychology.—Baltimore; Warwick & York.
Subscription $4.00. 540 pages. Founded 1910.
Monthly (9 numbers). Edited by Harold O. Rugg and coöperating board.

Comparative Psychology Monographs.—Baltimore; Williams & Wilkins Co.
Subscription $5.00. 500 pages per volume. Edited by W. S. Hunter.
Published without fixed dates, each number a single research. Founded 1922.

Psychoanalytic Review.—Washington, D. C.; 3617 Tenth Street, N. W.
Subscription $6.00. 500 pages annually. Psychoanalysis.
Quarterly. Founded 1913. Edited by W. A. White and S. E. Jelliffe.

Journal of Experimental Psychology.—Princeton, N. J.
Psychological Review Company. 500 pages annually. Experimental.
Subscription $6.00. Founded 1916. Bi-monthly. Edited by Madison Bentley.

Journal of Comparative Psychology.—Baltimore; Williams & Wilkins Co.
Subscription $5.00. 500 pages annually. Founded 1921.
Bi-monthly. Edited by Knight Dunlap and Robert M. Yerkes.

Psychological Abstracts.—Princeton, N. J.
Subscription $6.00. 700 pages annually. Edited by W. S. Hunter.
Monthly. Abstracts of psychological literature. Founded 1927.

Journal of General Psychology.—Worcester, Mass.; Clark University Press.
Subscription $7.00. 600–700 pages annually. Edited by Carl Murchison and an international coöperating board.
Quarterly. Experimental, theoretical, clinical, and historical psychology. Founded 1927.

Journal of Social Psychology.—Worcester, Mass.; Clark University Press.
Subscription $7.00. 500–600 pages. Edited by John Dewey, Carl Murchison, and an international coöperating board.
Quarterly. Political, racial, and differential psychology. Founded 1929.

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THE JOURNAL OF PHILOSOPHY

A CRITICAL DISCUSSION OF *MIND AND THE WORLD-ORDER*

GIVEN on the one hand a world of uncertain prediction, "delightful" neither "to the mathematician, the logician, nor the builder of metaphysical systems,"[1] and on the other, an exact logic of the implications of concepts, wholly divorced from that world, how is knowledge possible? A pragmatist seldom sets his problem in just these terms, but Professor C. I. Lewis in his book *Mind and the World-Order* has done just this thing, and furthermore, has given an answer which he labels as "conceptualistic pragmatism." No one has recognized more clearly that "the stronghold of pragmatism supposedly lies in the empirical," while "logic is the citadel of rationalism"[2]—and has straightway made logic ace high.

Perhaps such tactics render him suspect. Too often the deductive certainty of logic has served, if not as a standard of knowledge, then as a refuge from the insecurity of knowledge merely probable. It has provided the halting place in a weary quest for certainty. Now Mr. Lewis is not on a quest for a certainty of the traditional sort in which truth, with value connotations, is the motivation, or in which absolutely true empirical knowledge is the goal. But he *is* seeking a *ground* for knowledge, and in consequence his system will be a variation of this familiar theme.

Generally what is entailed therein is the abandonment of the ideal of Occam's razor, if not to the extent of multiplying entities, then by ascribing to the basal minima a dubious nature. The minima in this case are *a priori* concepts and truths. Mr. Lewis's main polemic is to center about the *a priori*, which takes the lion's share of the dichotomy he has made between what is independent of mind, the sensuously given, and what is mind's contribution to it, *a priori* concepts. The dichotomy itself is an important indication of the lay of the land. Like Kant before him, Mr. Lewis sets out from the sensuous manifold and the *a priori* conceptual forms. The difference is that the manifold is not really a manifold—chaotic—

[1] Bertrand Russell, *Problems of Philosophy* (New York, 1912), p. 156.

[2] C. I. Lewis, "Pragmatism and Logic," in *Contemporary American Philosophy* (New York, 1930), p. 43.

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and the *a priori* presents no order to which the given must conform. Such being the case, the Kantian conception of truth goes into the discard—and in favor of pragmatism. How the *a priori* fits into a pragmatic scheme of knowledge, how it is relevant to the problem of communication, and the correlate of this—how we have a common world—these are some of the questions faced in this remarkable book. The key to every answer is given by the *a priori:* It provides the ground for the validity of probability judgments, serves as a means to a common world, furnishes the pragmatic element in knowledge, and allows a pragmatic conception of truth.

As one might expect, a theory about logic lies at the bottom of this notion—a theory insistent that the propositions of logic are truths of intension. Mr. Lewis has assumed the double burden of enunciating the pragmatic credo and of maintaining this deep-rooted conviction as a logician. The intensional logic motivating his epistemology, taken by itself, seems impeccable. I think this paper will show, however, that his emphasis on the rôle of propositions intensionally taken is a dubious one. Analytic truths may be the indispensables for logic, but yet not the necessary and sufficient ground for knowledge. And they provide no adequate basis for a common world. Further, the pragmatic conception of truth does not receive full justice when presented as though its sole test were the achieving of intelligible order. Difficulties between pragmatic truth and the *a priori* will emerge.

About these theses the discussion to follow will revolve. But as a preface to the oncoming criticism, I think it only a meagre justice to note that this book is an event in contemporary philosophy. It is a real pleasure to chance upon a system so surprising in its reconciliation of warring camps. That it *is* a system, that it has coherence, that "preservative of rationalistic sanity,"[3] is not to damn it with faint praise. It has, besides, the grace saving to any system of being robust and full-blooded.

Mr. Lewis's book is one more achievement in philosophy not committed to apologetics and not assignable to the gallery of bizarre theories. His problem is a sensible one—the problem of knowledge. It is posed as follows: Unless there is some knowledge more than probable, the empirical knowledge based upon it can be only "probably probable." To assure the validity of empirical knowledge *as probable,* he introduces the *a priori.* And with the *a priori* we shall find ourselves concerned throughout. Now at first blush it appears guileless and innocent. It is not recognized by any "natural light," it exerts no compulsion on the mind to accept it (this being the prerogative of the brute given), and it puts no limi-

[3] A. N. Whitehead, *Process and Reality* (New York, 1929), p. 9.

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tation on the given since the latter is independent of it. The term "*a priori*" comprises categories or interpretative concepts with which we approach the given, and analytic propositions explicative of those concepts, the latter being all that is designated by "*a priori* truths." Any "synthetic" truths for bridging the gap between ideas in the mind and the reality presented in experience becomes just so much metaphysical excess baggage. Obviously, making *a priori* truths thus definitive precludes taking as basic an extensional interpretation of them.

The distinguishing character of *a priori* concepts is their logical priority to any particular experience, and as a corollary, their prescriptive power. "The world of experience is not given in experience,"[4] says Mr. Lewis. What we experience is always some sort of "reality"—the given interpreted, a world constructed by thought from the data of sense. The given as such is a welter of experience containing in itself an indiscriminate mixture of physical reality, dream, illusion, and deceitful appearance. Mind's rôle is actively to impose upon the given such criteria or interpretative principles as the real, the good, and the valid, so as to make intelligible experience possible. Such classification is always prior to every experience; for example, generalizations of the type of natural law are from experience already classified.

Not only does mind classify; it *prescribes* what shall fall inside and what outside a certain category, for in formulating its interpretative attitudes it *defines* the various types of real. Whatever fails to have a certain categorial character is simply ruled out of that category. That is to say, the category is not repudiated as invalid, but the experience is repudiated as in the wrong pew. The limitation is thus not on the given, but on reality. A certain behavior is prescribed for what is categorized.

In being actively imposed, a character of fiat attaches to these categories, yet also a character of deliberate choice, because they have alternatives. Recalcitrant empirical data which do not find their place within the old conceptual system move the mind to substitute new modes of interpretation for old. But this is not to say that such data invalidate old interpretative principles as they do empirical generalizations. So long as the principles are legislative, no conceivable experience could do that. *A priori* truths are never proved false, only inconvenient. And as such they are abandoned. Yet even though abandoned, they are eternally true. Any contradiction "new truth" presents to the old is only verbal, for the old terms have simply acquired new meanings. Concepts may be discarded but can not change.

[4] C. I. Lewis, *Mind and the World-Order* (New York, 1929), p. 29. Subsequent quotations from this work will be indicated by "*M. W-O.*"

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But such an Amen in sanction of eternal verities does not finish off all there is to be said. Their usefulness and plausibility have yet to be vouched for. To be plausible, *a priori* categories, and concepts—which differ from the categories only in degree of comprehensiveness—can not "float in from nowhere."[5] Hence categorial principles, "though . . . prior to the particular experience, . . . represent attitudes the mind has taken in the light of past experience as a whole."[6] It is not requisite that these be explicit in consciousness; they may be present implicitly in the consistency of behavior. Now if they are to appear useful, Mr. Lewis must efface the seeming arbitrariness about the mind's imposition of categories apart from any determination by the given. It is, then, a *coup de maître* to make the categorial distinctions ways of serving our interests. Choice or abandonment of a conceptual system will be determined by pragmatic considerations of simplification. The *a priori* becomes the pragmatic element in knowledge.

And not only does it function pragmatically in knowledge of the world of events, but it serves to make that world a common one. A common world, if I interpret him correctly, is not what the race started off with; it had to be constructed. How we have a common world is bound up with the problem of common understanding and is to be approached by way of solution to that problem. First of all, if there is to be understanding between two minds, they must have some identical elements in common.[7] Such elements can not be sensory images, for these are individual, inexpressible, and unsharable. They are, rather, *pure* concepts, not concepts as they exist psychologically, laden with imagery, but ideal abstractions *defined* as the meaning common to two minds between which there is understanding. This is consonant with what one would expect from Mr. Lewis: logical connotation plays first fiddle. Denotation is treated as a psychological category taking us into another plane, that of non-sharable experience.

Simple genetic descriptions seemingly appear to Mr. Lewis with a certain lack of dignity. But here he must and does cite an empirical ground for the possibility of concepts being sharable—the likeness among mankind in the way of basic needs, interests, and powers of relating, and the fact of being confronted with a common reality. An addendum to this last condition is necessary, however: This common reality is the thing we wish to account for, since we have no reason to believe that the given is common to the extent reality is. Reality is constructed on the basis of concepts "identified by the relational patterns which speech and behavior

[5] A. N. Whitehead, *Process and Reality* (New York, 1929).
[6] *M. W-O.*, p. 26.
[7] *Op. cit.*, p. 73.

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in general are capable of conveying."[8] *A* and *B* who understand each other frame concepts in terms of identical systems of orderly relation indicated by behavior, and in consequence find themselves in a common world. Verification of their mutual understanding is effected either by defining their terms in like manner, or by exhibiting the denotation by their behavior, meaning in this latter case being the element common to the things pointed out. Verification by behavior will be less conclusive however, since no collection pointed out could determine the denotation of a term uniquely. Obviously it could not show what unexamined cases would be included or excluded.

So much for the exposition of the *a priori* and of its rôle in constructing a common world. Now for its eugenic qualifications. Is *a priori* knowledge the fit antecedent of all probability judgments? There is a problem involved in taking propositions intensionally and making their intensional character epistemologically fundamental. For logic as such, there seems nothing else to do. An extensional interpretation of propositions, while giving an at-home feeling in epistemology, hardly succeeds in passing the lowest courts of logic, let alone reaching the court of appeals. First of all, the traditional relations of the square of opposition do not hold of propositions taken extensionally, should their subject term denote an empty class. Also, modern extensional theory of logic —of the Russellian sort—imposes somewhat of a strain on current meanings of inference and implication: Implication is such that a true proposition is implied by any proposition and a false proposition implies any proposition. This being the case, we could not uniquely draw out the consequences of a false premise, nor could we find what unique premises implied a given true statement.

Further, Mr. Lewis can not allow *a priori* propositions to be understood extensionally, *i.e.*, as statements about actual existents, for then they would impose a limitation upon experience. For example, "All swans are white," an extensional proposition, excludes from existence non-white swans, while "All swans are birds" legislates nothing from existence since it states nothing but the implication of concepts. Because of the covert reference classes make to extension, definitions are not described in terms of classes, but rather as the reference of one concept to another. Logical analysis effected by definition is relation, not dissection.[9] When *A* is defined in terms of *B* and *C*, a pattern of relations is traced between the three terms. All terms have their meaning in the total array of all meanings, *i.e.*, definition is circular, for "the relation of defining to defined [is not] that of part to whole."[9]

[8] *M. W-O.*, p. 109.
[9] *M. W-O.*, p. 82.

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But old habits of thought will assert themselves. The following is a hint at analysis turned dissection: "Thought . . . can separate, by analysis, entities which in their temporal or spatial existence are not separated, and it can conjoin, by synthesis, entities which in their existence are disjoined."[10] "The exhibition of meaning" by behavior "depends for success upon the ability of the person . . . to make the analysis which will isolate correctly just that totality of properties which is common to the things indicated."[11] The consequences of backsliding to a part-whole analysis are rather disastrous for his theory of definition.

Another setback to theory the facts force upon him. Concepts analyzed do break through the circle of definitive relations to another plane of reference, their denotation. *A priori* concepts supposedly do not take their rise from this plane, nor do they descend to it for significance. But Mr. Lewis admits that some concepts get their meanings only by reference to concepts which are correlated with sense qualities. And in connection with the discussion of absolute size, he notes that the concept "foot" refers eventually to the immediate presentation. So far as the individual mind is concerned, we often only understand when we have got back to familiar imagery. This fact had to find place in Mr. Lewis's system, but he has steered clear of any great emphasis on it since the denotation supposedly does not serve the purposes of communication. The concessions indicate the difficulty created by propositions intensionally interpreted when we leave logic—here a theory of definition—for epistemology. Psychological considerations can not be shut out.

Let us turn now to the prime feature of *a priori* concepts—their logical priority to particular experience. The term "logical priority" has been used to cover many philosophic difficulties, and has usually succeeded only in creating them. Mr. Lewis is at least explicit about what he means by the term—though he has not asserted as clearly his choice of some one of the meanings of "presupposition." He says, "In general, what seems to be intended [by the latter term] is the designation of certain principles as logically prior to that which 'presupposes' them."[12] To be logically prior to a fact is to imply that fact, though not to be implied by that fact. Whether "logically prior" is taken as the converse of "presuppose," I am not sure. If we may assume that such is his view, as I think we may, then "*B* presupposes *A*," (or "*A* prior to *B*"), would mean "*A* implies *B*," though not that *A* is implied by

[10] *Op. cit.*, p. 55.
[11] *Op. cit.*, p. 78.
[12] *M. W-O.*, p. 200.

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B. *A* is here a sufficient but not a necessary condition of *B*. Obviously the terms "imply," "presuppose," and "logically prior" are here used in an unusual relation to each other. When we say *B* presupposes *A*, we ordinarily mean that *A* is implied by *B*, *i.e.*, *B* implies *A*, though not that *A* need imply *B*. This is to take *A* as a necessary condition of *B*. Mr. Lewis says that if we understood "*B* presupposes *A*" in this fashion, "we should be so cluttered up with presuppositions that the fine glamour of the word would be lost." [13] I fail to see it, even granting that the necessity of the presupposition *A* could after all be only relative to the fact in question.

However this may be, his interpretation creates no difficulty in regard to *a priori* truths, for these are both logically prior and *necessary*[14]—prior to the particular experience and prerequisite to its intelligibility. This is to say that the existence of a certain body of analytic truths implies the intelligibility of experience and that the intelligibility of experience implies the existence of analytic truths. ("*A* logically prior to *B*" means "*A* implies *B*"; "*A* a necessary condition of *B*" means "*B* implies *A*.") Now it is perfectly legitimate here to inquire whether the existence of concepts or analytic propositions will always imply intelligibility of experience. Mr. Lewis seems to think they would, even if a perverse demon should present repeated sequences to the very minimum degree. We could still analyze these into patterns which would be of more frequent appearance, ignoring the rest as non-significant. "Even if the hypothetical demon should have an infinite number of qualia and complexities at his disposal, instead of a finite number, it is doubtful if we should be worse off. We should merely discard more of our experience. . . . In any experience such as we can, even at the worst, suppose our own to be, conception will be valid and knowledge will be possible." [15] Such optimism is a little rosy. Frankly, in a situation such as the latter, I do not see how concepts could bring intelligibility. I should expect the failure of "Principles *A*" and "*B*," *i.e.*, that " . . . every identifiable entity in experience is [not] equally associated with every other" [16] and that "in any situation . . . in which there are identifiable entities which fail to satisfy Principle *A*—*i.e.*, whose association is 'random'—there will be other entities, systematically connected with the former or specifiable in terms of them, which do satisfy Principle *A*." [17] Nor do I see how concepts could grow up in the light

[13] *Op. cit.*, p. 202.
[14] *Pragmatism and Logic*, p. 45.
[15] *M. W-O.*, p. 390.
[16] *Op. cit.*, p. 368.
[17] *Op. cit.*, p. 383.

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of past experience. Past experience would present as much darkness as light.

The priority of concepts, as presented in parts of the book, is undoubtedly temporal. Such being the case, we may inquire whether it is correct to describe the knowledge relation as mind meeting the given with concepts ready-made. In mathematics, in late stages of scientific development, it is—but is this always the case, for example, in our early experience? Is it the case when the mind is baffled and behavior hesitant? It seems here that what we do is try to *get* a concept to fit, not meet the particular experience with one. Mr. Lewis says our attempt to make a concept explicit is an attempt to make explicit what is already implicit in behavior. I should think that the phrase "meaning implicit in behavior" would not signify anything more than that the behavior embodying that meaning is consistent. But if action is hesitant, in what sense can it be there already? To assert that it is there notwithstanding, is tantamount to positing a potentiality which is actualized by vocal or other behavior. This way of understanding "logical priority" is more than open to question. When he states in another connection that it is not possible that all possibilities be actual, he hints at commitment to this view.

At various times we have broached the question of the origin of the *a priori* concepts—a legitimate question demanding an answer in any epistemology introducing them. Unless a concept were built up in the light of past experience, it would be a major miracle. Mr. Lewis states that such is its genesis; but then the *a priori* would have an empirical origin, a fact not according well with his denial that *a priori* propositions could be overturned like empirical generalizations. It would accord with his hint that perhaps "meanings present in the consistency of behavior"[18] were "physiological inferences."[19]

But if they are present in behavior—behavior presumably intelligent and purposive, not mere groping—the development of them in the light of past experience through emphasis upon what has been pragmatically valuable presents difficulties in the case of the small child who acts purposively yet whose past experience is meagre. The difficulty arises thus: Every conceptual interpretation requires an empirical generalization about the connection between the given appearance and a sequence in possible experience.[20] But such a generalization is no mere animal faith, even in the case of the child whose data for generalization are meagre. The child

[18] *M. W-O.*, p. 85.
[19] Bertrand Russell, *Philosophy* (New York, 1927).
[20] *M. W-O.*, pp. 289–290.

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makes a calculus of probabilities every time it claps a concept on a presentation. This unblushing rationalism gives way to a measure of modesty in the addendum that such a calculus is often instinctive and unconscious. But an unconscious calculus of probabilities seems to me suspiciously like animal faith. And in the case of concepts which are insignificant apart from their contrasts, *e.g.*, physically real and unreal, animal faith is rather obviously the better description of the situation. I doubt if we know what any type of real is until we have suffered illusion. Before the emergence of the concept "illusory," the concept "real" could have no meaning except in that uniform reaction toward everything characteristic of faith. The first age of man surely exemplifies this type of meaning—and faith.

That basic categories such as physically real and unreal should grow up pragmatically apart from any process of abstraction, and that certain concepts as "electron" or "tenth dimension" should be prescriptive and definitive from the beginning—all this seems correct description. But that many of the concepts of our maturity should be what they are for pragmatic reasons, without taking a direct start from empirical data, confounds me. I see no reason to eschew the description of most concepts as abstractions. Let them be abstractions; that would not militate against their later use in the prescriptive way Mr. Lewis describes. But—"the manner in which the precise classifications which definition embodies shall be effected, is something not dictated by experience."[21] Definition, he says, "represents . . . only our categorial attitudes of mind."[22] The sense of arbitrariness and of mere play at nominal definition left by these pronouncements is not effaced by anything he has to say about the influence of pragmatic considerations. The fault lies with his initial bias—taking the formulation of concepts apart from sensuous denotation, characteristic only of high stages of intellectual development, as the type of all formulation.

That concepts are got by abstraction and then held either as tentative or definitive is an account upon which Mr. Lewis makes his position especially clear: The "assignment of a name to a range of denotation should be sharply distinguished from that abstraction of essential and ignoring of other characters which is represented by many theories as the universal basis of general names."[23] "It would be a misunderstanding to suppose that established principles of science begin as hypotheses or tentative generalizations and are, by continued inductive verification" made certain enough "so that

[21] *M. W-O.*, p. 240.
[22] *Op. cit.*, p. 247.
[23] *Op. cit.*, p. 364.

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we dare embody them in definitions."[24] Rather, the scientist begins work with materials denoted by concepts pragmatically not significant, and imposes some which are, making these definitive. As far as science is concerned, I should say that both of these methods are common. I should inquire whether even the definitions got by the latter method are ever different from empirical generalizations—generalizations with reference to their past development and *a priori* definitions with reference to their future use. In one surprising passage, Mr. Lewis supports a view near this—a view obliterating the difference between *a priori* propositions and empirical generalizations: "The difference between . . . prescriptive laws and empirical generalizations is one determined by pragmatic considerations of the particular interests our knowledge is to serve."[25] A stone, for example, would be defined as a freely falling body for certain purposes, while for others such a statement would be merely an empirical generalization. The question which comes first, the *a priori* definition or the empirical generalization, now becomes insignificant. Preceding discussions would not lead one to expect this turn of affairs, and if such is the dénouement, Mr. Lewis's system looses much of its originality.

To view his account of scientific procedure and of the acquisition of knowledge from another angle—he posits at base the absolutely certain definition "*X* is *Z*," then states we can know *a priori* that if *Y* is an *X*, *Y* will conform to the definitive criteria (*Z*) of *X*. Now I note that he never makes it a practice to affirm the consequent of these true, hypothetical statements, though this process would be legitimate in cases where definitions such as that of the triangle underlay them. The point is that when he gets away from definitions framed as precise tautologies, he finds that an intensional logic takes cognizance of classes. Affirmation of the consequent is not legitimate when the consequent has wider extension than the antecedent, *i.e.*, when the predicate of the underlying categorical statement has wider extension than the subject. The definition is seemingly not always taken as analytic. Neither is it always understood in intension. In the "then clauses" of the hypothetical statements, the *Z*, which are the predicates of the definitions, are empirical criteria. "The totality of the complex 'then' clauses expresses the complete and *a priori* meaning of the concept . . . in denotation."[26]

Now I should say that the process of affirming the consequent is the procedure of science in securing definitive criteria. This involves a procedure which Mr. Lewis repudiates: beginning with

[24] *Op. cit.*, p. 400.
[25] *Op. cit.*, p. 375.
[26] *M. W-O.*, p. 289.

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tentative definitions and searching for the criteria. The following might be a type example—"Helium is a gas heavier than hydrogen giving certain bright line spectra . . . etc. (all the other known empirical criteria). Minor premise: "This gives these bright line spectra." And suppose "this" has certain other properties not included in the old concept helium, that is, not listed among the known empirical criteria. If in the future these are always found in this particular gas, the old concept will expand.—I see no significant difficulty in a definition's being tentative rather than *a priori* certain.

Leaving now the critical study of the ways of the *a priori*, let us examine its generation of a common world. An alternative theory at once presents itself: the assumption of a relational structure of the world there for all, as a basis for common concepts, instead of beginning "other end to" with common meanings and then constructing a common world. Belief in common relations not having the status of interpretations has at least the advantage of not assuming an ideality at base. Community of meaning Mr. Lewis admits is an ideal. That meanings vary in clearness is a commonplace; and concepts as they occur psychologically are not elements identical in two understanding minds. Only their idealized core is that.

Further, verification of community of meaning is never really complete. In this respect definition of terms ranks higher in certainty than exhibition of their denotation by behavior. But so long as he holds that the two requisites of common understanding are shared definitions and identical application of terms to the same objects, he should not waive this latter requisite in the interests of emphasizing definition. After all, by his own account, our arrival at a common reality depends on behavior: "When the behavior of each, guided by [a] common concept, is comparable or congruous, we have, so far, a reality in common." [27] The indication of our having common concepts is our making the same discriminations and relations in adjusting ourselves to the environment. We "identify . . . in [our own] experience those systems of orderly relation indicated by behavior." [28] All this is not very consistent with his penchant for verification by definition.

And now the question arises, In what sense, if any, are these systems of orderly relation common? Relations are given, as any other qualia are given, but he denies that the given possesses the relational structure we experience as reality. Relations as cognized are concepts constitutive of the interpretation of what is given and

[27] *M. W-O.*, p. 116.
[28] *Op. cit.*, p. 111.

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are not given in the particular experience. Now concepts themselves are defined as patterns of relationships. When two people have a concept in common, granting that they may not have psychological identity of sensuous content, do they harbor relations that are psychologically identical? *i.e.*, if substantive concepts are analyzed into relations, does the analysis have to stop at some relations that are common to avoid an infinite regress? Mr. Lewis denies end-terms psychologically identical, and yet has defined concepts as common, and considered possible the identification in our experience of systems of orderly relation. What can he mean by the statement, "there must be something which is identical in your mind and mine when we understand each other"?[29] He has said the way in which we learn names secures the unanimity of their use, *e.g.*, the baby learns the term "bottle" by someone pointing to the object and speaking the word. Must it not be assumed that the relation of pointing is common to both?

The view Mr. Lewis is concerned to combat is that there would be an infinite regress if relational terms were defined as relations of relations, and so on. "That the relations . . . are definable does not lead to any regress."[30] This statement hinges on his view that definition is eventually circular, not linear. Our system of concepts as a whole is closed, each meaning to be found in terms of every other. Leaving aside the question of meaningfulness Brouwer might raise in regard to the phrase "system of concepts as a whole"—supposing, with Santayana, that the number of our concepts is infinite—I really can not see any advantage of a circular procedure over a linear regress, either logically or epistemologically. Mr. Lewis seems to have forgotten the epistemological concern in maintaining this theory of definition. In connection with a former discussion of community of meaning he says, "It may not be sufficient that you and I both define A in terms of B and C, since B and C may have for us different significations. But if B also is defined by both in the same or equivalent fashion, and C, and so on, that is sufficient to assure common meaning."[31] What does the "and so on" imply—completion of the circle? He states such verification is "obviously a process which must be incomplete."[31] But I hardly think he could deny that we stop at some point where we are said to understand each other.

I think Mr. Russell is right in asserting that where there is circularity of definition there is infinite regress.[32] He distinguishes two sorts of regress, the one objectionable—where the *meaning* of

[29] *M. W-O.*, p. 73.
[30] *Op. cit.*, p. 109.
[31] *M. W-O.*, p. 79.
[32] *Principles of Mathematics*, Vol. I (Cambridge, 1903).

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a proposition never leads to a proposition with a definite meaning, and the other unobjectionable—where the regress is a process of implications, *e.g.*, when *A* has a definite meaning, but implies *B*, which implies *C*, and so on. Granting that regress can not be "linear" in Mr. Lewis's scheme, is the circularity not still a vicious process of the nature of a regress? How far do we get, to take a simplified case (and his own illustration), if *A* is defined in terms of *B* and *C*, *B* in terms of *A* and *C*, and *C* in terms of *A* and *B*—provided none of these has a definite meaning outside the circle?

We shall leave now the direct discussion of the *a priori*—though we shall never get away from it entirely—and shall examine the meaning Mr. Lewis attaches to "pragmatic truth." A conceptual system has truth if it reduces experience to order and law. I hold that the pragmatic conception of truth is not exhausted by an account in which the whole test of truth is its achieving intelligible order. Certain difficulties between pragmatism and the *a priori* will emerge.

First of all, I question the propriety of eulogizing *a priori* definitions as truths. As a matter of usage, truth supposedly has a reference. Mr. Lewis has criticized the pragmatist for not separating concept and immediacy, but he has erred in the opposite direction in not returning to immediacy for a test of truth. The pragmatic test of truth has been understood as an empirical one, containing within itself a "correspondence" test, while for Mr. Lewis there are certain truths which experience can never verify or falsify.

I think the fact that we can significantly question a definition indicates not merely that it is inconvenient, but that the notion of convenience itself depends upon the proposition's "fitting facts." The pragmatist would not grant that the proposition "mirrors" fact, though he does have a correspondence test of a sort. A proposition is said to "correspond to fact" when and if the expectation in it is realized. My point is that Mr. Lewis, as a pragmatist, has made little use of the essential test of truth, the empirical test. When he says conceptual systems are true if they bring intelligible order into our interpretation of phenomena and "respond . . . to such criteria as intellectual simplicity, economy, and comprehensiveness of principle,"[33] he at the same time denies that the criterion of truth is "simple conformity with experience as in the testing of a hypothesis."[33] He has seemingly turned the pragmatic theory of truth into a coherence theory; yet he is just as anxious to maintain that mere internal consistency is insufficient test of truth. Intellectual consistency and economy have a high place

[33] *M. W-O.*, p. 259.

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because in the long-run they are means to the satisfaction of our needs. But satisfaction of needs in an empirical sense, *e.g.*, the satisfaction of an expectation by direct verification of meaning, could not make a conceptual system or *a priori* proposition true. These are eternally true, apart from empirical verification and apart from facts which are instances of them.

As for applicability of scientific systems, Mr. Lewis sets up as alternatives its determination on pragmatic and on empirical grounds.[34] The answer to the question, *Which* abstract geometry will apply to space?, if decided on empirical grounds, he says is probable only—the only other grounds for deciding being pragmatic or an interplay of the pragmatic and empirical. Now it seems to me that only an interplay of the two can constitute a test; certainly the two never struck me as capable of excluding each other. Further, what I make out of the phrase "pragmatically more convenient" is "a simpler description of empirical facts." In Appendix A Mr. Lewis makes a concession to this view in saying, "There comes a stage when it is no longer easily possible to say whether concepts are devised, and laws discovered, to fit phenomenal facts, or whether the conceptual system itself rules and facts are reconceived in conformity to it."[35] And he adds, "At least the give and take between these two is on approximately equal terms."[36] But his previous emphasis has not indicated that the two were on equal terms.

His theme is woven about the undeniable pragmatic procedure of science in choosing conceptual systems which are most convenient; he has then made the essential description of these systems that of ideal systems having "the same kind of truth . . . which characterizes a pure geometry apart from its applications."[36] I should say that more commonly systems are devised as descriptions of facts, and that convenience is resorted to as a test for truth only when a direct empirical test is impossible. Mr. Lewis has made too much of the point that "conceptual systems may usefully and validly be applied to given content although they involve making distinctions which are not given and establishing relations where none are found."[37] I am not denying that we do deliberately impose some orders—witness the color spectrum—but I criticize Mr. Lewis for making such instances, which represent a late stage of intellectual development, the type of ordering by the mind. Such imposition is the exception rather than the rule. I think the description of *a priori* concepts as not arbitrary because determined

[34] *Pragmatism and Logic*, p. 44.
[35] *M. W-O.*, p. 397.
[36] *Op. cit.*, p. 398.
[37] *Op. cit.*, p. 431.

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by practical interests does not allow him the manifesto that "mind is . . . uncompelled by any possible content of experience,"[38] that "categorial order . . . can not be determined by merely empirical fact."[39]

It may well be that the application of a particular concept is not determined by the given, as when alternative interpretations are possible, but how the group of relevant alternatives could fail to be determined by the given I do not know. That concepts should be independent of the given is much harder for me to understand than that the given should be independent of concepts. This, however, is an insistent emphasis save for one rather unexpected and puzzling passage where he says, "It is the content of the given which determines (in part) the interpretation, not the interpretation which determines the immediate to fit it."[40] Of course, he has never maintained that an interpretation was a Procrustean bed for the immediate—if the latter did not conform, it was relegated to another category. Concession of even partial determination of the concept by the immediate is new; it has neither been emphasized nor fully described.

Mr. Lewis admits that modification of concepts is compelled by recalcitrant empirical data—notwithstanding his insistence that the mind's hazard of a new guess is determined by the demands of intelligible order and not by those of "simple conformity with experience."[41] His admission seemingly states that the character of the given determines the modification, and presumably the usefulness, of concepts. Is it any the less decisive in determining their formulation?

Appendix E rather amazingly clears the fog away from this whole question, but I think at the same time it destroys some of the glamour of the *a priori*. There he raises the question, "How far does the character of given experience determine the applicability . . . of concepts?"[42]—"The very fact of their being developed at all is evidence of their applicability to something. I do not mean by this that such systems" (of mathematics) "originate as applied or empirical truth and are later abstracted from such application. That is true, in general, though there are exceptions. . . ."[42] "In general, a conceptual interpretation which makes distinctions or relations where, in experience, none are to be discovered, will be a poor intellectual instrument for dealing with that phenomenal content. And yet, there is abundant evidence that we not only can

[38] *M. W-O.*, p. 238.
[39] *Op. cit.*, p. 233.
[40] *Op. cit.*, p. 276.
[41] *Op. cit.*, p. 259.
[42] *Op. cit.*, p. 428.

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but do apply concepts to the given where this involves making distinctions and relations which empirically can not be discovered."[43] "To the question, 'What will determine such application?' the answer seems to be: Complex considerations, in which the purposes to be served, the type of order of the concepts, and the general character of the given, will be important, but in which, apparently, no one of these factors by itself is capable of being decisive."[44] Note that after each concession to the enemy, there is a qualifying statement. Now my point is this: If applicability is determined, partially at least, by the character of the given, and if pragmatic considerations determine the formulation of a concept, does it not follow that formulation as well as applicability is determined by the character of the given? That concepts take their rise from the given is a point he has not meant to make or stress, but it seems to me to follow from the above statements.

In closing, I can not pass over in silence the quarrel between pragmatism and the *a priori* truths. These are the black sheep in the pragmatic fold. Supposedly they provide the pragmatic element in knowledge because they are compatible with the alternative of abandonment if useless. But the scandal is that they are eternally true, forever impervious to either verification or falsification; regardless of anyone's belief, they still are eternally true. Yet how meaningful is it to term propositions true or false apart from anyone's belief? Abandonment does not faze them. But the anomaly is that when abandoned they are no longer pragmatically true. They *were* pragmatically true when they once introduced simplicity into our interpretations, but that time is past. Mr. Lewis has got his metaphysics well cluttered with these truths. Not only is there an epistemological disjunction of the *a priori* and empirical; there is also a metaphysical one. He makes no mention of a realm of being, but the logical truth of definitive propositions seems to imply it. It is possible that this realm is an unhappy addition to an otherwise sober philosophy.

I think it is clear that the notion of the *a priori* which is the cornerstone of Mr. Lewis's system is somehow unsatisfactory. It is his weakness, but at the same time his strength. A logical category breathes with the breath of life, infusing uniqueness into a philosophy. Whether a remedial description of it could be made so as to leave the structure intact, whether the system is merely unfinished, or whether it should simply be begun again—whether even, some other logic might not flourish more happily within a

[43] *Op. cit.*, p. 430.
[44] *Op. cit.*, p. 432.

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system—these are considerations for another day. For the present, the best final criticism would be a register of appreciation. What Mr. Lewis has done here will probably suffer the fate of most systems, to fade into the general background of philosophic thought; however, it will have made its contribution. That it has done something surprising with an old problem, surprising both to pragmatism and to the more firmly intrenched schools of thought, that it has stimulated and will stimulate afresh—this is adequate comment.

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BOOK REVIEWS

Biological Principles. A Critical Study. J. H. WOODGER. (International Library of Psychology, Philosophy, and Scientific Method. New York: Harcourt, Brace and Company. 1929. Pp. xii + 498.

A cytologist here points out the need in biology of a critical overhauling of concepts. If biology is to proceed beyond the experimental accumulation of facts to a sound interpretation of them, it must clear up its own terms and presuppositions, which in many cases are but relics of outworn views. The data have so far multiplied that the pertinence of old issues such as mechanism *vs.* vitalism, structure *vs.* function, causation *vs.* teleology, is becoming doubtful. While physics has already undertaken such self-criticism, biology lags behind. Mr. Woodger "would especially draw attention to the need for a critical analysis of biological concepts with a view to freeing them from historical accretions which are not in harmony with modern knowledge, and to the need for more boldness and originality in developing new ones" (p. 8). So deeply indeed does he feel the demand for analysis of presuppositions that he devotes the General Introduction and Part I (218 pages in all) to the elaboration of a theory of knowledge and a critique of the categories of substance and cause. His theory of knowledge steers a middle course between materialism and phenomenalism. Materialism as accepted by biological mechanism is due to the Cartesian isolation of the physical world governed solely by laws of motion. Thus biological mechanism contemplates physical science as "something fixed and stable, not as a system of knowledge whose life and value depend on its mobility and readiness to revise at a moment's notice its most cherished convictions when new facts or a new point of view suggest the possibility of alternate ones" (p. 58). So most biologists "have always meekly followed the lead of physics even

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although it has not always been very fresh physics'' (p. 57). The other extreme, represented by the phenomenalism of Mach, Pearson, and others, is rejected; the writer's position is a realistic one, closest perhaps to that of Whitehead, whom he quotes with approval many times throughout the book.

Without criticizing the position in detail, the philosopher might be permitted the admonition that if the biologist thinks to lay his conceptual foundation more securely by digging into epistemological ground, he will find more controversy than ever on his hands. Nevertheless we must commend one who sees that science leads to issues beyond itself and that its final validity depends on their solution, however difficult that solution may be.

In criticism of substance and causation the author suggests ''that both categories are manifestations of one fundamental mode of thought—namely, the search for permanences in nature'' (p. 170). We find an interesting application of this suggestion to living organisms: permanence here appears as persistence in relative independence of environment, and evolution from lower to higher as increase of this independence. He writes: ''the 'higher' an organism is the greater is the variety of external changes to which it is capable of making 'appropriate' changes of 'responses.' And those lines of evolution which are spoken of as 'progressive' appear to represent a gradual development of greater and greater independence of environmental change'' (pp. 200–201). (We note in passing that this fact is itself independent of epistemological theory.)

After the extremely careful and detailed analyses of Part I we come with high hope of fruitful result to the application in Part II: Problems of Biological Knowledge. Perhaps we are disappointed at the paucity of new points of view, and at the failure to decide yes-or-no, or even to demolish, the older issues. But we should recall the writer's motive, which is rather to induce an attitude than a conviction. Also many interesting points are made by the way.

True, he launches a strong attack on the ontological mechanists: ''their physics is too often that of the elementary text-book which is not only very dogmatic but represents the state of the science in the Victorian era'' (p. 237). And again, he urges that whether mechanism is understood to be the reduction of vital phenomena to physics and chemistry, or to terms of the classical mechanics, or to the workings of a machine analogous to humanly made machines, such a reduction is fallacious. Physics and chemistry may explain the assimilation or even the distribution of food, but they do not explain how the food got into the organism (p. 263). Humanly made machines have a conscious maker—who is the mechanic for the mechanist? ''The materialistic mechanists want to have a machine

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without a mechanic'' (p. 264). But on the other hand he declares that vitalism is able to say little that is positive about its own peculiar entities. They explain too well, and by virtue of no specific meaning of their own; ''such an appeal to imperceptibles is contrary to the present tendencies of scientific thought'' (p. 266). If the vitalist urges that mechanism omits something essential to life, the mechanist replies that that something must be disregarded because it is not amenable to scientific method, or is unreal, or will some day be explained mechanically—(p. 267—the passage is too long to quote). Yet these replies clearly fail to touch the difficulty; it is a question of fact and not of amenability to scientific treatment, and the peculiarly vital is not explained by being called unreal or being declared explicable in the far future. Thus the conclusion of the author is that both sides are wrong, and no positive way is suggested out of the deadlock. If he insists, as he does in a painstaking section on the meaning of organization (pp. 288–325) that the relations between the cells are as ultimate as the cells themselves, we are left uncertain whether or not those relations are physico-chemical. Meanwhile the critic will see the mechanist standing with his back against the wall of experimental verifiability. Physical science, of whatever branch, seems definitely committed to the dogma that nothing is to be believed which is not either verified by sense or involved by mathematical calculation in what is so verified. And no vitalist can offer an entity of either sort. Hence the only way of attacking mechanism, when it assumes the modest dress of a method, is to undermine this dogma. But Mr. Woodger seems to accept the dogma when he declares ''If we are to adhere to what is verifiable—as natural science at its best always has done—then there seems to be no sound methodological alternative to behaviourism'' (p. 461). Thus in spite of his urging both sides to think more about their presuppositions, and in spite of his declaration that ''What is wanted is more coöperation and less competition between rival theories'' (p. 271), I do not find that he has brightened the prospect of conciliation. A characteristic passage is this: ''I will now summarize my reasons for believing that an *exclusive* attention to what are called mechanical explanations in biology is not desirable, bearing in mind that vitalism is not the only alternative, but that purely biological explanations are also possible'' (p. 317). We are given, however, no positive suggestion as to what these latter may be, beyond the rather vague phrases ''internal relations,'' ''hierarchical types of organization'' and such. We may admit indeed that mechanism is too abstract an account of life to be adequate, but as long as the *method* of sense-verifiability is accepted, what does abstractness matter? It is the method that mechanism stands for; what else can a laboratory worker do?

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We can not here present in any detail the author's discussion of the antitheses of structure and function, preformation and epigenesis, causation and teleology, body and mind. The analysis is careful and long, and on the whole clear. The general position is that these antitheses are largely due to vicious abstraction; to a philosopher the Hegelian influence—being mindful of the whole—is patent. And if no definite means of verifying the whole in the parts is proposed, we may excuse the writer in his own words at the close of the long chapter on "Preformation and Epigenesis": "I would remind the reader that my primary aim has been to analyse the difficulties of this antithesis as clearly as I can rather than to offer an alternative to existing speculative theories" (p. 428).

The two points that seem to the reviewer most noteworthy in Part II are (1) the insistence upon the influence of the whole organism upon its parts and (2) the new-found humility of a working biologist who realizes the need of broad philosophic thinking—a need too little recognized hitherto. As to the first point: organisms "are such that their parts are different in their properties when they are separated from the whole from what they are *in* the whole. Hence 'being part of a living whole' is an *internal* organizing relation" (p. 451). As to the second, a number of quotations may be appended. "But it is obvious that the present state of biology is one which not only might justly be described as primitive, but it has, as we have seen, been very largely developed under the influence of a one-sided metaphysic of nature" (p. 479). "One of the most deadly consequences of the cock-sure and dogmatic attitude of natural science during the last century was the way it led people to believe that we had learnt all there was to know *in principle* and that the future had no surprises in store for us" (p. 482). "To suppose that Darwin was the Newton of biology is to suppose that biology has already reached a degree of theoretical development comparable with that of physics in the eighteenth century, and that is surely preposterous" (p. 483). And finally "Since our biologists are only trained to be good investigators we can hardly expect them to be good thinkers" (p. 487).

It must in conscience be added that the book is not well written. The author falls into the not uncommon habit of using commas for semicolons; he says "try and" instead of "try to" in several places; and too often his sentences are needlessly long and verbose. Grace of style we do not ask for, but errors of punctuation and grammar are scarcely excusable.

But apart from these blemishes, the philosophic outsider will be glad the book has been written and will be interested to learn what biologists think about it.

W. H. SHELDON.

YALE UNIVERSITY.

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Whewell's Philosophy of Induction. MARION RUSH STOLL. Published by the author, Baltimore, Md. Printed at the Lancaster Press, Inc., Lancaster, Pa. 1929. Pp. iv + 125.

William Whewell was a man of prodigious energy and productiveness, an original philosopher, a logician who made contributions of vital importance to the philosophy of science; nevertheless he has been much neglected by philosophers of his own and subsequent generations. He was a mathematician and physicist of no mean merit, a man who made original contributions to science. Consequently, he brought to the study of philosophy an unrivalled acquaintance with the results of scientific endeavor. In a true Baconian spirit, he wrote a history of the inductive sciences with the intention of gaining therefrom the empirical data by which to discover the correct method of inductive discovery and proof. Like all other philosophers, he made his mistakes; nevertheless he contributed to logic the now well-recognized relativity of the distinction between facts and theories, and he was the one who, after Newton had discouraged the use of hypotheses by his *Hypotheses non fingo,* emphasized their indispensability and showed that Newton had himself employed them. Whewell was not appreciated in his own day, nevertheless the arguments and illustrations which he adduced were so cogent that John Stuart Mill was compelled to recognize the importance of hypotheses in the process of induction, even though they are out of place in his theory. Jevons and subsequent logicians followed Mill in giving hypotheses a prominent place in inductive logic. While other writers, both before and subsequently to Whewell, recognized the use of hypotheses in induction, nevertheless Whewell, more than anyone else, should be credited with introducing into logic the inductive method of hypothesis, so widely known today.

In an age when England as yet knew little of German philosophy, and that unfavorably, Whewell, who published English translations of Goethe as well as of Plato, accepted Kant's critical philosophy as affording a secure means of overcoming the scepticism of Hume and of attaining universal and necessary truth. He included almost literal translations of sections from the *Kritik der Reinen Vernunft* (those on space and time) in his own works.[1] Yet he was no slavish imitator. With characteristic originality, he extended Kant's categories and forms to include, not only the principles of space, time, causality, substance, etc., but also all the fundamental principles of natural science. As science progresses, new categories (Whewell termed them Fundamental Ideas), whereby the mind legislates for experience, must accordingly be revealed. Necessary and universal

[1] Whewell himself makes this statement, in his *Philosophy of Discovery,* Ch. XXVIII, § 3.

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truth is therefore *progressive*. Like Kant, Whewell accepted the existence of a real world independent of the mind; like Kant, he also accepted the idealistic conception that the mind legislates for experience. Unlike Kant he accepted the conviction of scientists that knowledge of this real world is possible, and then he faced squarely the metaphysical problem that arises for any thinker who tries to reconcile realism and idealism: How is it that the human mind, in legislating for science, gives us correct knowledge of reality?

Had Whewell lived in Germany, he would have been acclaimed as an original follower of Kant. But Kantian apriorism diverged too far from contemporary English tendencies. English empiricism overwhelmed him; he received no hearing and made no converts. Even in Trinity College, Cambridge, of which he was Master, John Stuart Mill was more influential than Whewell.

Miss Stoll's book is a careful and well-rounded exposition and criticism of the philosophy of this interesting thinker and scientist. It was submitted to Bryn Mawr College as a thesis for the Ph.D. degree. It is everything that such a thesis should be: concise, clearly written, a genuine contribution to knowledge. It merits a wide circulation and should be in every philosophical library of any pretensions. It deserves some criticism because the author confines herself too much to Whewell alone and does not present him adequately in his philosophical and scientific environment; she is a little too critical of him and too cautious of giving approval to appreciate fully his true greatness; but these criticisms amount to little in comparison with the genuine service that the book does in presenting a great but almost neglected thinker.

HOMER H. DUBS.

MARSHALL COLLEGE.

Fundamentals of Philosophy. WALTER S. GAMERTSFELDER and D. LUTHER EVANS. New York: Prentice-Hall, Inc. 1930. Pp. xii + 761.

Students have been variously introduced to philosophy. One teacher uses Plato's *Republic* for his major textbook; another, a history of philosophy in brief; another uses a book that deals with present-day issues in philosophic thought; and still another approaches philosophy by way of the sciences. Professors Gamertsfelder and Evans answer the question, "Of what should an introduction to philosophy consist?" with this interpretive survey of the whole philosophic and scientific field. No major problem of ancient, medieval, or modern times has been neglected from Zeno's paradoxes to the new quantum theory.

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Fundamentals of Philosophy is outstanding among introductions to philosophy for two reasons. In the first place we are given a definitive treatment of the body of scientific fact, and in the second, a clear, direct exposition of philosophic thought. There is no talking down to an imagined level for beginners; but, what is equally important, there is also no taint of the esoteric. The authors are to be congratulated on their careful compilation of the important results in philosophical thinking and scientific experiment. Their work is by way of being a challenge to the undergraduate who really wishes to know what both philosophy and science have been about these twenty-five hundred years.

The difficult relationship between philosophy and science is unequivocally handled. We have not read far in the text until we come to the declaration that "conclusions in philosophy should be provisional and tentative, not final" (p. 28); and a little farther on we are told that "philosophy is a continuing activity in which no final perfection of knowledge can be achieved" (p. 31). Philosophy, scientific itself in method, begins where the sciences leave off, and is a coördinator and articulator of the specialized bodies of knowledge (p. 148). For philosophy as for science the evidence can never be all in just because the philosopher depends on the sciences of his day for his material. So far has modern thinking traveled from the medieval!

The value of such a textbook as this for providing the beginner in philosophy with definite data on the many facets of human existence is obvious. But the belief that the flow of scientific truth extends to philosophy's conclusions is the result of attaching empirical significance to those truths experience is powerless to gain. The "always" in the statement, "Two and two are always four," is no less important here than in the declaration that "the number of electrons revolving about the nucleus of the atom is always equal to the number of electrons in the nucleus subtracted from the number of protons." Philosophy not only can not wait on experience, but need not. The very interest of the philosopher in the developments of science and in the maturing of human insights transcends experience. He is informed on what the sciences and other cultural pursuits of his day are doing just because nothing human is alien to him; like Browning's Poet he walks the pavements, "scenting the world, looking it full in face," not so much because he needs to round out his philosophy this way as because he is already a complete lover of wisdom. Philosophy's function of interpretation, important though this may be, is incidental in comparison with the creative element. And this is why a Plato can exist notwithstanding the meagerness of the scientific truth of his

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day. We have learned much that Plato could not have dreamed in regard to the delicate adjustments in the complex machinery of the universe. We have not always been spiritual losers, either, like Paracelsus, in the quest of knowledge for power. On the contrary, such knowledge has proved often enough of immeasurable advantage. But if we knew *per impossibile* everything there is to know in an experimental fashion we should still have progressed a very short way along the road of philosophy.

In addition to its complete index this book is provided with a thoroughgoing outline which includes each division and subdivision. The completeness and excellent organization of material reduce the necessity for collateral reading to a minimum, though full references are supplied at the end of each chapter.

There are four large divisions:

Part One. The Place of Philosophy in the Community of Culture.

Part Two. The Principles of Epistemology and the Character of Experience.

Part Three. The Principles of Cosmology and the Nature of Experience.

Part Four. The Principles of Axiology and the Problems of Personality.

The first section deals with definitions of philosophy indicating its scope, methods, and values as seen by leading philosophers of every age. The second is devoted to a discussion of knowledge, its origin, nature, relevancy, and criteria. This leads to the third section, an examination of the world itself. Here the structure of the material world is studied from the standpoints of physics and astronomy; the evolutionary process in nature from the standpoints of biology, sociology, psychology, and so on. Arguments for both mechanism and teleology from past and present thinkers are summarized before going on to a consideration of the qualitative character of ultimate being, and the quantitative nature of the real world. Part Four deals with metaphysical values. Of these values that of personality is considered paramount.

Though the aim of the collaborators in this work has been to stimulate rather than to influence thought, as we read in the preface, the student who at the close of the course does not believe in soul and is not very sure of God simply has not followed the arguments. But how salutary these arguments are will be suggested by the following passage chosen at random from the last section. It occurs in a sub-topic, "Evil Incident to a World of Growth," in Chapter XIX, "The Status of Evil in the Universe."

"To think of Omnipotence as power to do anything, even the impossible, is indeed the notion of a primitive or childish mind.

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Its social correlate is the conception of a crude tyrannical being of physical force whose conduct is capricious and arbitrary. Such a view takes no account of power exercised in harmony with moral purpose and a sense of values. . . . The nature of God and the laws of his being must be determined in the light of man's experience in God's world'' (pp. 660–661).

The last topic in the book is on ''A Suggested Conception of God.'' The view of God which seems to the authors to be required by religious experience and philosophical reflection is expressed in a brief, concise credo:

God is the dynamic energy, the life and soul of the world; the principle of order, unity, and continuity in nature; a creative, end-realizing, and perfecting power; a personal and super-personal spiritual presence; the source and sustaining ground of our moral, religious, and esthetic values'' (p. 716, the italics are theirs).

There are very few errors in the printing. The only serious one occurs on page 251 at the beginning of the sub-section on phenomenology. Here line 11 has been substituted for what should have been line 4 which does not appear at all. The whole book, however, is decidedly attractive, and well sustains the publishers' reputation for good textbook making.

M. Whitcomb Hess.

Ohio University.

The Meaning of History (Smysl Istorii). Nicolai Berdyayev. Berlin: Obettsk. 1923. 269 pp.

Berdyayev is a mystic. He feels history as a cosmic event. History begins, or is conceived, long before man comes into existence. In the ages of biological and stellar evolution the destiny of man is pre-conceived. The stars prepare the path of man. In their terrific temperatures, within the maze of broken atoms, lost electrons, and trembling protons, there is something being prepared which, when the surrounding planets will almost reach the end of their careers and approach the absolute zero of temperature, will suddenly burst out in form of struggling and suffering humanity. This is what Berdyayev means when he says that ''our history begins in heaven.'' History, thus, is a part of the plan of the universe. It is ''noumenal.'' It is not an empty story, nor a senseless episode in the life of the universe, but an integral part, nay, the central event in the process of self-manifestation of Being, which is the history of God. Berdyayev defines history as ''harmony and struggle between God and Man on the foundation of freedom.'' For him it seems evident that God needs and ''craves'' Man with his free choice of good and evil just as much as the latter needs and craves God. Therefore,

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the incarnation of God in Man, the descendence of the Son of God to earth, appears as the central event of the world history. It is, no doubt, a myth. But Berdyayev assumes with Schelling that every genuine myth is a story about reality.

As history begins, so it ends, according to Berdyayev, also in heaven. He maintains that the vision of the end of history—eschatological mystery—is a *conditio sine qua non* of any philosophy of history which assumes that historical process is not altogether deprived of "meaning." The assumption of "meaning" is for our philosopher equivalent to the assumption of an "end" which will absorb and revive the past, and for which all that has been will exist forever. The conventional theory of progress seems to Berdyayev entirely unsatisfactory. The theory of progress assumes that only "future" has value when the ultimate goal of "the greatest happiness of the greatest number" will be attained. Compared to this ultimate goal all the "former generations" are nothing but transitional phases, "merely a means" for reaching the ideal of universal harmony and happiness. They are victims to be sacrificed for the sake of those who will live afterwards. Thus the doctrine of progress results in a "deification of future at the expense of the present and past" (p. 223). As a contrast to this historical vampyrism of future the author offers his conception of history according to which all generations, present, past, or future, have an intrinsic value apart from any relation to the "future happiness of mankind." History at every moment is in an immediate contact with the Absolute. Every historical adventure is a "revelation of God to man, and a corresponding revelation of man to God" (p. 243). History is a Divine Experience. The whole universe is involved and manifested in it. Therefore, the incarnation of God in man—the descent of the Son of God to the earth,—appears as the central event of the world history.

Berdyayev's philosophy of history signifies a deliberate break with the rationalistic tradition of the Enlightenment. He follows the path of ecumenical Fathers. Apart from the obvious connection with St. Augustin, one can easily perceive the echo of the earlier Fathers, the powerful voices of Tertullian and Irenaeus, mythologoumena of a Policarp and the early Gnostics. In his assertion that history is necessary, not only to man, but also to God, that it is fundamentally and primarily a divine experience, Berdyayev revives the teachings of St. Chryzostom, whose ideas have long been forgotten in the West. He also agrees with the German mystic, Franz Baader, in regarding the sense and the aim of a historical action as a realisation, though unconscious, of our contact with God—"als die Rehabilitation des Menschen zur effectiven

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Wiederherstellung seines Urcontracts oder Bundes mit Gott," as Baader puts it (*Fragmenta Cognitionis*, IV, 9).

I think, however, that Mr. Berdyayev errs in regarding modern science as entirely antagonistic to the construction of any "meaning of history." He is equally unjust in regarding his own conception as admittedly "unscientific." It seems to me that the novelty of his position lies precisely in the new form under the effect of which the old mythological material of Christian historiosophy becomes scientifically thinkable and fundamentally consistent with the general theory of evolution.

HENRY LANZ.

STANFORD UNIVERSITY.

JOURNALS AND NEW BOOKS

AUSTRALASIAN JOURNAL OF PSYCHOLOGY AND PHILOSOPHY. Vol. IX, No. 2. Sidelights: II. Gandhi contra mundum: *Francis Anderson.* The Empiricism of Dr. Alexander: *H. B. Loughnan.* Law and Logic: *K. H. Bailey.* Can We Diagnose Feeble-Mindedness in Children?: *P. M. Bachelard.* Insensitiveness to Tone Quality: *Mary Cochran.* The Evolution of Existence: *C. J. Adcock.* Sectionalism or Mutualism? *A. E. P.*

SCIENTIA. Vol. XLIX, N. CCXXX–6. Géométrie euclidienne et géométrie riemannienne: *E. Cartan.* Forma e dimensioni dell-'Universo: *G. Castelnuovo.* The Origin of Mutations: *E. W. MacBride.* Parallelerscheinungen auf mathematischem Gebiet bei jetzt lebenden Naturvölkern und bei Kulturvölkern vergangener Zeiten: *E. Fettweis.*

Castell, Alburey: "Histories of Modern European Thought, 1918–1930." Reprinted from the *Journal of Modern History*, Vol. III, No. 2, pp. 242–265.

Candeloro, Giorgio: Lo Svolgimento del Pensiero di Giuseppe de Maistre. (Pubblicazioni della Scuola di Filosofia della R. Università di Roma. IV.) Rome: Tipografia del Senato. 1931. 61 pp.

Carabellese, Pantaleo: Il Problema Teologico come Filosofia. (Pubblicazioni della Scuola di Filosofia della R. Università di Roma. I.) Rome: Tipografia del Senato. 1931. xi + 199 pp.

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Grebe, Wilhelm: Erkennen und Zeit. Eine Studie über das Naturgesetz. München: Ernst Reinhardt. 1931. 59 pp. 3.50 M.

Jolivet, Régis: Essai sur le Bergsonisme. Paris: Librairie Catholique Emmanuel Vitte. 1921. 162 pp.

Klugmann, N., et M. Dumesnil de Gramont: De Luther à Wagner. Essai de psychologie ethnique. Préface de J.-L. Breton. 2 vols. Paris: J. Vrin. 1931. 277 pp; 222 pp. 40 fr.

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Moscarini, Flaviana: Cicerone e l'Etica Stoica nel III Libra del "De Finibus." (Pubblicazioni della Scuola di Filosofia della R. Università di Roma. II.) Rome: Tipografia del Senato. 1930. 50 pp.

Palmieri, Mario: Relativity. An Interpretation of Einstein's Theory. Los Angeles: Forbush Publishing Co. 1931. 87 pp.

Schinz, Albert: La Pensée de Jean-Jacques Rousseau. Essai d'Interprétation nouvelle. 2 vols. Northampton, Mass.: Smith College. 1929. 521 pp.

Schmidt, Franz: Die Theorie de Geisteswissenschaften vom Altertum bis zur Gegenwart. München: Ernst Reinhardt. 150 pp. 5.50 M.

Solovine, Maurice. Héraclite d'Ephèse. Doctrines philosophiques traduites intégralement et précédées d'une introduction. Paris: Félix Alcan. 1931. xl + 100 pp. 12 frcs.

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American Journal of Psychology.—Ithaca, N. Y.; Cornell University.
Subscription $6.50. 624 pages annually. Edited by M. F. Washburn, K. M. Dollenbach, Madison Bentley, and E. G. Boring.
Quarterly. General and experimental psychology. Founded 1887.

Pedagogical Seminary and Journal of Genetic Psychology.—Worcester, Mass.; Clark University Press.
Subscription $7.00. 600 pages annually. Edited by Carl Murchison and international co-operating board.
Quarterly. Child behavior, differential and genetic psychology. Founded 1891.

Genetic Psychology Monographs.—Worcester, Mass.; Clark University Press.
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Monthly. Each number one complete research. Child behavior, differential and genetic psychology. Founded 1925.

Psychological Review.—Princeton, N. J.; Psychological Review Company.
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Bi-monthly. General. Founded 1894. Edited by Howard C. Warren.

Psychological Bulletin.—Princeton, N. J.; Psychological Review Company.
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Monthly. Founded 1904. Edited by Samuel W. Fernberger.

Psychological Monographs.—Princeton, N. J.; Psychological Review Company.
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Quarterly. Edited by James P. Porter and William F. Book.

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Published without fixed dates, each number a single experimental study.

Journal of Abnormal Psychology and Social Psychology.—Eno Hall, Princeton, N. J.
Subscription $5.00; foreign $5.25. Acting Editor, Henry T. Moore.
Quarterly. 432 pages annually. Founded 1906. Abnormal and social.

Psychological Clinic.—Philadelphia; Psychological Clinic Press.
Subscription $3.00. 288 pages. Edited by Lightner Witmer. Founded 1907.
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Monthly (9 numbers). Edited by Harold O. Rugg and coöperating board.

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Quarterly. Founded 1913. Edited by W. A. White and S. E. Jelliffe.

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Psychological Review Company. 500 pages annually. Experimental.
Subscription $6.00. Founded 1916. Bi-monthly. Edited by Madison Bentley.

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Bi-monthly. Edited by Knight Dunlap and Robert M. Yerkes.

Psychological Abstracts.—Princeton, N. J.
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Monthly. Abstracts of psychological literature. Founded 1927.

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The Journal of Philosophy

THE DUALISM OF MEANS AND VALUE[1]

WHEN Augustine wrote the following words he was reiterating what was already familiar: "if, journeying through this world, away from God, we wish to return to our own land where we may be happy, this world must be used, not enjoyed."[2] The medieval attitude toward the world emphasized the inner life of the individual as that of the ancient Greek could not; and this medieval attitude furnishes the background for understanding much that occurs in modern scientific thought. However much the Greek may draw distinctions between primary and secondary qualities, being and becoming, they were nevertheless distinctions between things in an objective world. In the chaos that occurred with the breakdown of Greek civilization, skepticism was the outcome. From this the escape lay in the discovery of a realm of inner experience, as a general doctrine, and the transference of interest and value to that subjective world. Gregory the Great, in terror at the sack of the Eternal City, saw the necessity of penance by terror, by suffering, by refusing to give way to the pleasures of this world. This world was but the opportunity for salvation from Hell to Heaven. It was material, the instrument, the scene of a divine drama that was to culminate in a divine purpose. The Christian found himself with a conflict of inner motives that was, therefore, the center of his whole attention. Of these motives, those that were essentially his were evil; other motives were the voice of God. In the word of a modern, perhaps, the typical medieval attitude was to indulge in evil imagination and then seek to overcome it. This sinful inner nature of man was the self which must be overcome by the miracle of divine grace. The problem was not one of selecting from the world what was good or bad, but of purging evil from the soul itself. The typical statement of this was the doctrine of total depravity. Man's inner actions were in rebellion against God. The earthly community—the Church—was but an outward manifestation of the inner community against which man was rebelling. The Church was preserving the values of a civilization that was gone, and was

[1] Read in part before the Lehigh Valley Philosophy Club, Bethlehem, Pa., October 24, 1930.

[2] Taylor: *The Medieval Mind*, Vol. I, p. 66.

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attempting to give them to a barbarous and warlike people, out of whose life those values never arose. Values that grow out of one's life, or a social organization that is built in response to desires that thrust themselves upon one in the events of his daily life, may be in some sense objective. But the Church was not a society which had grown out of the daily life of the barbarian; nor had its values. The Church and its values were imported and foreign. They were truly of another world. Consequently, they had simply to be accepted without objective reference; they had to be taken over in the inner soul without question and in childlike faith. On the part of the convert, it was not a problem of intelligence, question, experimentation, or reasoning. Man was transported back to a pre-intelligent period. Intelligence is relevant to control of objective affairs. The objective values of the natural life of the barbarian were worldly and of the devil, from which he must flee. Objective things were transitory and unimportant. The things of God were alone important. Intelligent control toward successful activity was blasphemy. Man was nothing—a vile worm. Man is to admit all his worthlessness and to confess the vanity of all worldly goods before God would save him. Such a salvation was in the nature of the case subjective, and could not be objectified. It was a change of subjective, emotional states of consciousness, rather than an objective working out of the expression of life impulses. The Church did not intend to give man an opportunity to build anything, to reconstruct society, or to achieve something for the world; but rather to give him the choice between two states of mind, one of which was sin, and the other one of humility, penance, and sacrifice unto salvation. Evil was not constituted by some objective harm, but by stiff-necked refusal of the way of salvation set forth by God's Holy Church. Good was not found in objects enjoyed, but in the acceptance and contemplation of the things of the spirit. In such a state of subjectivity, values are qualities of the inner world. Material things are neither good nor bad. No one created the Greek world. But God created the Christian world, and that for a purpose—the salvation of man's immortal soul. This is the meaning of the world. What is valuable is located in the subject; the meaning of the world lies within the depths of the soul.

What I wish to emphasize is that the separation of the world of values from the material world had now taken place. And this separation of preconceived values out of the world left the scientist free. Thus the Church performed a service for the sciences, however much it may regret the use to which the scientist put it. The world of the Greek had been accepted for what experience showed it to be. The world of Plato and of Aristotle was a world of value

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and of accident as well as of order. Indeed value entered into order as being the final cause. Thus Aristotle could explain the orbit of the heavenly bodies in such terms. The heavenly bodies were perfect, so traveled in perfect and eternal orbits, i.e., circles. Or again, in the case of earthly things, values or final causes enter as the developed potentiality of matter. The discrepancies between the ideal form and the individual thing, the variations of the individual things within the infima species, are accidents. And accidents represent the resistance of the matter to the form. This doctrine of eternal and perfect forms was taken over by the medieval society. *Ante rem* they were ideas in the mind of God. To some extent the question of resistance of matter and form entered, but only in the willfulness and error of man—the war of the flesh and the spirit. Man was a free moral agent whose will could by God's mercy accept or reject the laws of his creator, as no material body could. He had fallen from grace. Hence he was prone to error and his states of consciousness were not predictable. But otherwise the medievalist was a rationalist. He did not need a theory of accident to bolster his doctrine. Indeed God made use of evil man and of the devil. None of them was any surprise to him. They fitted into his divine purpose nicely. He had, in his infinite wisdom, created the universe a perfect and harmonious whole, of intellectual order. Thus did the Church abstract values, accidents, emotions, feelings, etc., from the scientist's material, as the Greek had never been able to do. The scientist no longer dealt with final causes, a teleological world or its purposes; nor was he permitted to do so. When Galileo discovered spots on the perfect heavenly bodies, he kept himself from being toasted for his false prophesies by pleading that science had naught to say of perfection or imperfection. The scientist's world was not a world of values. It was a purely intellectual world. He dealt with a world of mass and motion—things that could be measured and predicted. "Force," for example, was not a feeling of effort. It was defined in terms of mass, space, and time. Since the Church had transferred values to consciousness, science might continue to do so. Hence consciousness became the convenient dumping ground for all that did not answer to the demands of mathematics. The scientist thus kept in his world that which could be measured and predicted—in a word, that which responded conveniently to mathematics, and rid himself of all else. Mathematics demanded discrete, homogeneous units. Hence the mass particle became the reliable thing in nature. It was reliable because it was measurable and predictable, i.e., bound by eternal and immutable laws. Before creating the world, God had mastered Euclid. It was, as we have said, a purely intellectual world. It was, as Augus-

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tine had said, a world not to be enjoyed, but to be used. Values had found their place in another realm.

The dualism of the seventeenth century represented a shift from a social compromise between God and Caesar to an equally social compromise between God and the scientist. But that compromise was one that could only remain standing so long as the only thinkers were physicists. The Revolution must destroy it. Where "good" and "bad" are fundamentally affairs of *desiring*, rather than of things desired, values are thereby stated in terms of states of consciousness rather than in terms of material things. Thus, as we have said, the physical scientist could take advantage of this to eliminate from his world whatever could not be brought to terms with mathematics. And Galileo could say:

> I am inclined sufficiently to believe . . . the thing that produces heat in us and makes us perceive it, which we call by the general name fire, is a multitude of minute corpuscles thus and thus figured, moved with such and such a velocity. . . . But that besides their figure, number, motion, penetration and touch, there is in fire another quality, that is heat . . . and I judge that it is so much due to us that, if the animate and sensitive body were removed, heat would remain nothing more than a simple word.[3]

Or again:

> I think that these tastes, odours, colours, etc., on the side of the object in which they seem to exist, are nothing else than mere names, but hold their residence solely in the sensitive body; so that if the animal were removed, every such quality would be abolished and annihilated.[4]

The philosophic elaboration of this position in the seventeenth century by Descartes and Locke involved a double dualism: "the epistemological dualism of the theory of representative perception, and the psychophysical dualism which conceives empirical reality to fall asunder into a world of mind and a world of matter mutually exclusive and utterly antithetic."[5] It is true that materialists exhibit some squeamishness at the admission of minds or spirits. But though they gag at the gnat, they swallow the camel, for they are in as great a difficulty as are spiritualists. I can not but agree with Tomasso Campanella that it is quite as much a miracle that atoms knocking together or in motion should produce a sensation as that corporeal bodies should arise from incorporeal ones.[6] What I wish to point out is that the fundamental difficulty is still present; there is as much need for miracle in materialism as there is in the psychophysical dualism of Descartes, Locke, and Malebranche. In the case of either, there is the same disconnection between the realm of value

[3] Burtt: *The Metaphysical Foundations of Modern Physical Science*, p. 78.
[4] *Ibid.*, p. 75.
[5] Lovejoy: *The Revolt against Dualism*, p. 3.
[6] Höffding: *A History of Modern Philosophy*, Vol. I, p. 152.

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and the physical world. Let us note that the word "sensation" is not a proper name; it has connotations. It does not merely denote what we have in experience, but proposes to introduce theories. Affairs of experience can not be identified with the motions of molecules, atoms, or electrons, or with fields of force, even though the latter are said mysteriously to cause or generate the former, and hence once more we have a dichotomy between a world of sensations, appearances, values, or what you will, and a material world.

One of the most brilliant defenses of dualism is Mr. Lovejoy's *The Revolt against Dualism*. I do not wish to give here a review of it, but rather to select certain phases such as may suggest, to the contrary of Mr. Lovejoy's thesis, some possibility of continuing the "revolt." What is perhaps the high point of the book is the point we have just been trying to show. The most significant line of cleavage, he says, with respect to theories of perception, is that which divides *all* generative theories from all others. If, in the act of perceiving, each of us makes temporary additions of his own to reality, it is a question of secondary though not of negligible consequence whether these are supposed to be psychically or psychophysically or purely cerebrally generated additions. In all such theories it at any event remains the admitted fact that (most or all) of the things I actually, immediately, sensibly perceive, exist only in so far as I, an individual organism, exist and exercise a function of a biologically very peculiar sort. And if all the immediate content is thus engendered by and relative to the perceiver, the epistemological situation remains the same, whatever variety of the generative theory be adopted. If I am at any given moment to have knowledge of events or entities independent of my individual constitution and momentary condition, I must reach these ulterior realities through present and private data; and the ultimate justification, if any, for doing so, must be found either in reasonable faith, or in some process of probable inference. The traditional reproach against historic dualism has been that this penetration through and beyond the immediate to the not-immediately-given is impossible and inconceivable. If this be a difficulty it is a difficulty shared by all generative theories. It has become almost the established habit to play loosely with terms; to use the language after rejecting the substance of naïve realism; sternly to condemn "dualism" while accepting its essentials; to express the utmost horror of "bifurcation" and then to proceed cheerfully to bifurcate.

The issue as laid down by Mr. Lovejoy is that "if (*a*) the argument for epistemological dualism is cogent, and if (*b*) no place among physical objects can be found for perceptual and other data as epistemological dualism conceives of them, then, on these grounds

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alone, psychophysical dualism (with respect to content) would be established."[7] I should like to point out the way in which (*a*) seems to me either not to be plausible or not to be relevant to the conclusion. Epistemological dualism, so we may remind ourselves, stands for the assertion of "duality, that of the content or datum at a given moment immediately and indubitably presented, and the reality said to be known thereby."[8] It is the assertion that "all knowing is mediated through the presence . . . of entities which must be distinguished from an ulterior reality which is the true objective of knowledge."[9] Now, although such terms as "content or datum," "ulterior reality" and "the true objective" have connotations in certain systems of philosophy, namely, psychophysical dualism, such as may beg the whole question, Mr. Lovejoy, I take it, wishes us to ignore those connections. If we do, the above statements seem innocuous enough. They are taken to mean simply that an act of knowing involves a dualism between what is present and the object known. In this case it is irrelevant to a psychophysical dualism; or at least I shall point out why I think it is.

But before I do that, I wish to mention another proposition which may be involved, and that is that perception is a cognitive act. For if "epistemological dualism" is taken to include the notion that perception is cognitive, then it would be relevant to (*b*) above and to the conclusion. Here we are on old ground.[10] This proposition seems to be quite unplausible, as Mr. Dewey has pointed out. In the words of Mr. Lovejoy, himself, "if a datum . . . is what it is solely from the standpoint of the percipient and only for him, and, in the last analysis, only by virtue of his individual constitution, then his experiencing of it would not appear to afford what is commonly understood by knowledge."[11] What, then, is meant by the assertion that perception is cognitive? Mr. Lovejoy has further pointed out, and rightly as I think, that "when immediate data are simply taken as ultimate . . . they are *eo ipso* . . . innocent of epistemic pretensions."[12] Error is then inconceivable. "Error," we are informed, "must consist in attributing some character now present in perception or imagery, or represented by a verbal symbol, to *another* locus in reality, where it in fact is not present."[13] Evidently the supposition that perception is cognitive involves the notion that perception is an attribution of

[7] *Ibid.*, p. 32.
[8] *Ibid.*, p. 15.
[9] *Ibid.*, p. 16.
[10] Dewey: *Essays in Experimental Logic*, pp. 250ff., and *Experience and Nature*, p. 310.
[11] *Op. cit.*, p. 121.
[12] *Ibid.*, p. 127.
[13] *Ibid.*, p. 23.

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characteristics to (external) loci or to physical things or to events, presumably non-experiential.[14] But Mr. Lovejoy adds, "It is, of course, not immediately apparent that a character which exists only as a consequence of a percipient event in me, and only while I am perceiving it, *can* legitimately or intelligibly be said to be an attribute of an object or an 'event' assumed to exist independently of perception; or even that such a relative character can be held to be truly situated at the locus (spatial, temporal, or spatio-temporal) of such an object or event."[15] Shall we conclude, then, by attributing all such characters to the percipient organism and thus avoid all error in the future? Such a conclusion would be considered an absurdity, no less by Mr. Lovejoy, I suppose, than by anyone else. And I have not mentioned it to suggest that he would hold such a doctrine. Rather have I wished to point out how difficult, to me at least, is the term "attributing" when it is used for the purpose of showing perception to be cognitive. That there are "meanings" in perception, I have no reason to doubt. And, I take it, some of these meanings have arisen from non-reflective experiences, while others have arisen from reflective experiences. In any case, where and when they are called into question reflection may arise. But where they are just perceived—*where they are simply accepted and acted upon*—where no question arises, where there is no attempt to determine upon the meaning of what is present, how can there be said to be judgment? And judgment, Mr. Lovejoy says, is necessary in order that there be truth or error, i.e., a cognitive act. But this problem has been the subject of longer dissertations, and I leave it with that. Only I may add that if perception be defined in such a manner as to require an *actual act of attributing* its content either to a non-experiential material world, or to an equally non-experiential sensorium, then perception has arisen rather late in the history of man, and even now occurs very rarely, chiefly in academic circles.

Turning now to the second question, it seems to me that, if we do not add the proposition that perception is cognitive, the duality of knowledge is irrelevant to the conclusion that there is a psychophysical dualism. Mr. Lovejoy has insisted that the Berkeleyian reduction of dualism to idealism is irrelevant to the antecedent quarrel between realists as to whether or not the characteristics, upon which the realists are agreed as essential to a physical world, imply a dualism between a mental world and a transcendent material world. This may be true. But it is true only if the dualism of knowledge is irrelevant to the proposition that there is a mental

[14] Santayana: *Scepticism and Animal Faith*, pp. 187, 233, 282, and Broad: *Scientific Method*, p. 268.

[15] *Op. cit.*, p. 97.

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world and a transcendent material world. For the characteristics of a physical world, in so far as a realist need agree to them, are tools of analysis required for mediating between what is immediately there and what is not there, i.e., for determining upon the meaning of what is at hand. They answer to the dualism of knowledge. Now the argument of Berkeley was, I take it, that these tools of analysis did not imply a transcendent material world. And that is, I should say, relevant to the proposition that they do; namely, the two propositions are contradictory. That such an argument as Berkeley's would eventually imply a subjectivism and a skepticism, as it did in Hume, could only be possible if it were further admitted that experience is subjective. One can call it subjective or any other name he likes. But the fact still remains that the only tests there are for truth are experiences. Such a proposition does not, of course, imply that all experiences are tests, but that tests are experiences. If, then, the connotation of the term "subjective" is such as to be inconsistent with the fact that all attempts at objectivity are based upon experience, it follows that the term "subjective" is in so far inappropriate for some experience, or else those attempts are futile.

Mr. Lovejoy has said that "an experienced datum is conceived as epistemologically subjective if it is not assumed to possess, and therefore to be capable of exhibiting, any 'intrinsic' quality or relation which the intended object of knowledge has within its own spatio-temporal limits."[16] I accept this definition if the significance of "an intended object of knowledge" is taken to involve hypotheses, theories, possible or tentative meanings, etc., occurring, as they normally do, in the process of solving problems. If so, it is not without relation to the subjective world of which we have been speaking. Frustrated desires represent isolation from what, by the fact of being desired, is of immense importance. Spectacular or continual frustration may indeed lead to the supposition that no values can lie in the objective physical world. But it is none the less true that acceptance of such isolation as ultimate represents an impasse in life, an impotence to effect transition, and the final failure of alleged knowledge to be anything other than intrinsically amusing. On the contrary, while frustration and inhibition mean at least temporary isolation from certain important things, they can not possibly mean isolation from all nature. They are occurrences possible only because we are of the world. The situation is objective, and objectively it is one of confusion, suspense, doubt, and conflicting tendencies. Just because of that, there is need for a cognitive act to determine just what specifically is objective.

[16] *Ibid.*, p. 98.

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The notion that belief or opinion is subjective, while knowledge is objective, arises because "belief," so used, is taken to mean "mere belief" which in turn, when asserted with emphasis upon the "mere," means that what is held is dubious, questionable, and disconnected from the world as test and experimentation would show it. The experienced convergence of railroad tracks is an example of subjectivity in so far as it is taken to exhibit a quality or relation of the tracks but (it is assumed) does not, i.e., *further experience* will show that they do not converge. Such a definition, it would appear, has no necessary connection with mental and physical worlds, nor does it make a distinction between a world of appearance and a world of reality. An invidious comparison of appearance with reality signifies that certain appearances have proved misleading with reference to certain other more important appearances. The man, who has learned that things are not always what they seem, is not one who has gone beyond experience, but is one who has lost his innocence by having experiences. The subjective-objective relation is not relevant to worlds, final dualisms, or to sensations merely had. It is relevant to a cognitive relation in which what is present stands to the object of knowledge; and only when and where there is such a relation. If this is true there will be no paradox in a further consequence. The "immediate datum" relevant to which questions are raised may be only a part of what is present. And what else is present is neither subjective nor objective. In Berkeley's problem of the "small round tower" and the "large square building" there is a cognitive situation. And there is subjectivity in so far as the first is supposed to but does not exhibit a quality or relation of the latter. Surely, however, there is the very common fact that we do recognize familiar things at a distance, and do, when question arises, figure out pretty accurately what the distant thing may be. The very fact of knowledge is the fact that the present does to that extent furnish ground for prediction, the test of which lies not in another world but in the spatio-temporal future.[17]

The general problem can be stated in terms of perspectives. "You approach the truth about a thing," Mr. Lovejoy says, "only when after changing your standpoint you find some of the characters of the thing remaining the same. . . . The cognoscendum, in short, has always been regarded as a sort of constant."[18] What is directly "there" is simultaneous with the percipient organism. But it is also "there" as promising something that lies at a spatio-temporal distance. One takes thought in order to determine upon

[17] Whitehead: *Process and Reality*, p. 310.
[18] *Op. cit.*, p. 131.

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what in the future will be real; upon what is, that is to say, the character of the thing that lies in the perspective ahead.

In the remainder of this paper I wish to enquire what are the further characteristics of this cognoscendum or object of knowledge which Mr. Lovejoy wishes to regard as a sort of constant. He goes on to point out that "the greater and more characteristic part of Einstein's effort, as has often been remarked, was a 'quest of the absolute' which he found in the Minkowskian four-dimensional continuum with its absolute space-time magnitude, the 'interval.' The constructive part of Einstein's reasoning, in short, has throughout been determined by the principle that 'the test of objectivity is invariance for all observers.'"[19] Now I do have even a surprisingly meager knowledge of what Mr. Einstein's doctrine is all about. But just the same, I am under the impression that this "interval" is a transformation equation between different frames of reference. If this is what Mr. Lovejoy takes it to be, and if it is intended as an illustration of a wider doctrine of "epistemological objectivity" as being, so to speak, the transformation equations between different perspectives, then there would be a basis for agreement upon a general doctrine that is exceedingly close to what the objective relativist holds. Presumably this interval, $\frac{1}{\sqrt{1-\frac{v^2}{c^2}}}$, is an achievement of what Mr. Lovejoy means by the "quest for content," an identity in nature. Furthermore:

> That precisely this achievement, which to some epistemologists seems so paradoxical, is the essence of the practical application of knowledge to life, which we name wisdom, is a truism—but it is one which the "doctrine of perspectives" plainly contradicts. What we call, in the practical or moral sense, "seeing things in perspective" is in fact seeing them out of perspective—correcting the foreshortenings and distortions which arise from our transient moods or preoccupations or passions. It is equally evident that the transcendence of standpoints is the essential of that kind of reasonableness which makes man (to some small extent) a social being. In Professor Mead's words:
>
> "It is only in so far as the individual acts not only in his own perspective but also in the perspectives of others, especially in the common perspective of the group, that a society arises and its affairs become the object of scientific inquiry. The limitation of social organization is found in the inability of individuals to place themselves in the perspectives of others, to take their points of view. . . . The social perspective exists in the experience of the individual in so far as it is intelligible, and it is its intelligibility that is the condition of the individual entering into the perspectives of others, especially of the group. In the field of any social science, the objective data are those experiences of the inividuals in which they take the attitude of the community, i.e., in which they enter into the perspectives of the other members of the community."[20]

[19] *Ibid.*, p. 131.

[20] *Ibid.*, p. 132.

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I am not overly optimistic about this possibility of general agreement among philosophers. For although Mr. Lovejoy does find something of value stated in terms of perspectives, i.e., Professor Mead's words, nevertheless we are assured that the "doctrine of perspectives" plainly contradicts it. It is true that Mr. Lovejoy cites the Lorenze-Fitzgerald contraction formulæ as an illustration of the achievement of what he means by the "quest for content"; and it is true that Mr. Lovejoy cites Mr. Einstein's work as having vindicated his position. Indeed, Mr. Einstein seems to be very agreeable in the matter of "vindicating." Having vindicated Ptolemy and Copernicus, Bergson and Meyerson, Idealism, Realism, and Pragmatism, he could not conscientiously withhold his good will from Locke. But what Mr. Lovejoy takes to be vindicated here is a psychophysical dualism: for "obviously the data of perception do not consist of the characters which, upon such a view, constitute 'the objective universe disclosed by relativity'; they differ from it far more widely than from the objective world of the older physics."[21] Rosy as all this vindication may be, it, too, has its stickers. And Mr. Lovejoy is not at all unwilling to forego his great advantage. For just what the "content" of this $\frac{1}{\sqrt{1-\frac{v^2}{c^2}}}$ may be, it appears difficult even for Mr. Lovejoy to imagine.[22] Indeed, *how* whatever absolute, that may be indicated by a mathematical formula for the translation from one frame of reference to another, can itself be the Cause (it would not at all be proper to say "causes") of the data of perception, is not only in need of a clever imagination, but also of a thoroughgoing explanation. That such a "content" would be different, quite different, from the data of perception, is true. In fact, it is *so different* that it hardly allows any more the facile picture of variously shaped groups of billiard-ball atoms creating, by some miracle, and mirroring themselves schematically in sensations. It is a relief to find that to Mr. Lovejoy it is a little unconvincing, and perhaps he may pardon others if to them it seems to border on nonsense; the kind of nonsense, that is to say, that will cover a lacuna by a word, which is characteristic of all generative theories. Furthermore, it is interesting to note that a similar difficulty arises with reference to other, though connected, developments in physics. Throughout the volume we are repeatedly admonished to heed in awe the word of the astronomer and the physicist when it fits the philosophical proclivities of the author. But when the

[21] *Ibid.*, p. 147.
[22] *Ibid.*, p. 151.

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gentleman of the laboratory proceeds to dissolve the solid world of matter from under the dualist's feet, that gentleman receives in his turn the solemn warning to be "slow in drawing philosophical consequences";[23] he is dubbed an "agnostic,"[24] and informed that he can not long remain satisfied with such conceptions.[25]

The escape from this dualism, so long riddled by criticism, lies along the lines neither of materialism nor of idealism. For fundamentally their methods are the same, in that both convert objects of knowledge into "ulterior realities." Neither does it lie along the line of a philosophy of *Als Ob* or of positivism. For in the one case the notion of science as fiction leads away from an analysis of what in science is true, and what it means to be true. In the case of positivism a similar failure occurs with the rejection of "causes of phenomena" and the insistence upon laws of science as correlations of phenomena. So far as "cause of phenomena" is taken, as it has been taken, to distinguish between a non-experiential physical world and a world of appearance or phenomena, it should, I have argued, be rejected. Its rejection would mean that the world of common experience is a world that exhibits physical characteristics. But causal laws are by no means eliminated, nor do we resort solely to laws of correlation of phenomena.

Any discussion of our problem must recognize the development and use of objects of knowledge or scientific objects in the scientist's laboratory. So far as experimentation is objective, it means that we can come back to what is there in experience. Galileo was dealing with observable things as a test of physical laws. Presumably he was not rolling sensations down inclined planes. When, having made use of instruments and technique to determine the development of scientific objects through controlled observation, and having accomplished this admirable result, he issues an *obiter dictum* upon the subjective and illusory character of experiences and observations, it is not a conclusion that he is drawing from premises thus verified, but in fact a commentary upon his technique and a reopening of the problem. To our question as to what is the status of scientific objects, the only answer that can be given must be one based upon observation of how they are used. Over and above correlation on the basis of Mill's canons or of elaborate developments of statistics, it means the establishment of a structure whereby there may be stated precisely the process by which the result is brought about. High correlation may indeed be *prima facie* evidence that there is a causal relation between events of classes A and B, but it does not state that relation. It is essentially empiric, and no neces-

[23] *Ibid.*, p. 285.
[24] *Ibid.*, p. 299.
[25] *Ibid.*, p. 284.

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sary relation is shown. The development of scientific objects furnishes a logical structure involving common elements for the analysis of A and B such that one can be shown to be the function of the other.[26] It can be stated in the form of equations in which the one side is exactly equal to the other. Either, then, there is a fallacy to be detected, or the language is absolutely accurate, not allowing one to read between the lines, every word or symbol having its defined meaning which one may read as he goes along. There is nothing which can be surreptitiously added. Such a statement is inevitably mechanistic, and it excludes magic as Epicurus said. Yet it not only excludes magic, but the contingent, the precarious, the novel, and the qualitative. What I wish to point out is that whether or not man created God in his own image, he has created the physical world,—I mean especially the non-experiential material world—in the image of his logic. It is non-experiential not at all because of our incapacity to experience, as has been so often supposed. I do not deny that there may be "somethings" which we can not experience. I say it would be meaningless either to assert them or to deny them. But physics is not meaningless. The material world is non-experiential for the same reason that it is not qualitative. It is logical and must deal with homogeneous units. Its concepts, mass and energy, are coefficients and integrals. The principle of "conservation" of these coefficients and integrals is the principle of identity required by logic. And what can not be brought to terms with this is non-rational.[27] To those that are primarily interested in the pictures in a book, all this will seem impossible. Like the Hindu geometers, who are said to have proved their theorems by writing "behold" under the diagrams, one may not see that models, diagrams, etc., are useful aids to thinking because they give rise to intuitions. Yet these things have no more to do with the truth of physics than had the superstitions of Kepler with the truth of his three laws.[28] If one is less interested in pictures, it is possible to conceive that truth has reference to the laws of science, rather than to the passing models by which they are developed. The truth and meaning of scientific laws lie in their experimental application to reality.

To sum up, then, the status of the scientific object, "It seems almost too obvious for mention that a scientific object consisting of a set of measurements of relations between two qualitative objects, and itself accordingly non-qualitative, can not possibly be taken, or even mis-taken, for a new kind of 'real' object which is a rival to

[26] Russell: *Our Knowledge of the External World,* 2nd Edition, p. 240.
[27] Meyerson: *Identity and Reality.*
[28] Russell: *Sceptical Essays,* p. 40.

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the 'reality' of the ordinary object of experience."[29] "The conception of the physical object is, in considerable degree, the outcome of complex operations of comparison and translation. In consequence, while the physical object is *not* any one of the things compared, it enables things qualitatively unlike and individual to be treated" in regard to their homogeneous characteristics, while their qualitative differences are taken as irrelevancies. "The procedure of physics itself discloses that physical objects can not be individual existential objects."[30] What has been said about physical objects can be said of all scientific objects, hence of psychological objects, i.e., sensations, intelligence, and what not. "The psychologism which considers the psychological elements and their mechanism as reality, is wrong from its roots to its top, and this psychologism is not a bit better than materialism. . . . A psychical element . . . has as little reality as have the atoms of the physicist. Our body is not a heap of atoms; our inner life is still less a heap of ideas and feelings and emotions and volitions, if we are to take these mental things in the way the psychologist has to take them, as contents of consciousness made up of psychical elements."[31]

The real world is a world such as experience presents it. It is a world of "realities" and illusions. It is orderly and precarious, monotonous and novel. Thus do men love, thus do men doubt and thus do men think. Recurring to our friend, the good Saint Augustine, a world to be used must be a world enjoyed.

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BOOK REVIEWS

A Critical Analysis of the Philosophy of Émile Meyerson. GEORGE BOAS. Baltimore: The Johns Hopkins Press. 1930. Pp. v + 146.

What Mr. Boas wishes to accomplish is to interest American students in the monumental work of M. Meyerson and to show them that they neglect this historian and interpreter of science at their own great loss. To make such an attempt by the method of condensing three volumes into one short book is to have great confidence in what one subjects to this treatment. Mr. Boas is justified by the outcome and has to thank both the interest of his subject and his own skill. Initially intending to confine himself to exposition, he found himself caught in problems of interpretation, and since Mr. Meyerson is an historian of science for whom its history shows the

[29] Dewey: *The Quest for Certainty*, p. 130.
[30] *Ibid.*, p. 241.
[31] Münsterberg: *Psychology and Life.*

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way to philosophy and instructs in the ardent defence of a philosophical thesis, Mr. Boas finds himself also compelled to criticism. This small book of 146 pages offers good measure of information and argument.

The arrangement is that of separate treatment of the three volumes, *Identité et Réalité,* the only work of Meyerson's that has been translated into English (the translation, by Kate Loewenberg in 1930 in the Library of Philosophy series, preserves the flexibility and grace of style of the original); *De l'Explication dans les Sciences; La Deduction Relativiste.* M. Meyerson's thesis is the same throughout, his learning and philosophical skill making the theme of inexhaustible interest. A diagrammatic simplification of his account of thought might well precede an attempt to convey a little of the argument by which he supports it. The scientist, like the ordinary man, faces multiplicity and lives in a changing experience, and he needs to understand, to explain. Luckily he is provided by his nature with principles that attend to this for him. These principles are themselves only one, and that is as it should be, for the principle is that of identity, and it is well that it is itself conformable to the test of reality it imposes on all else. Experience offers us variety, individuality, change; these our mind can not accept; fortunately, the reason why it can not accept them is because it is actuated by principles that explain them by gradual and methodical denial. What provides our intellectual difficulties provides also their cure. And why not? If the principles of thought are both *a priori* and powerful enough (for M. Meyerson their operation is inevitable), they are a sure cure for any intellectual difficulty—an intellectual difficulty being just a situation in which they are about to but have yet to operate. The only disturbing possibility is the suspicion that the cure they effect may be no better than the disease. This may seem like a flippant, at least a frivolous, rendering of the conclusions of M. Meyerson's magnificent investigation of the history of science. It is not intended to belittle the brilliant success of the scrutiny to which he subjects its processes. His own attitude toward his findings is hard to determine. He describes the situation he enables us to envisage and in which he makes his reader feel very much at home as paradoxical; he does not deplore the habits of thought that repeatedly lead to it; he thinks them justified by their success and moreover necessary. Whether human nature can so change as to make a different method of thought possible remains to be seen—if I understand him. Meantime as an historian of science he waits for a new science before describing it, and while human nature is as it is he does not do anything so foolish as to ask it to be different. And

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the results for science are not so negative as might at first appear. That the mind has to deny special qualities and change in its need for metaphysical identities is not the frustration but the birth of science. Our attempt to apply a principle which nature must reject provides perpetual opportunities for thought and a series of immediate successes for science. As for validity, nature must be partly identical, else the principle of identity could not apply so well as it does; it can not be wholly so since thus it would cease to be, and also thus the principle of thought which is the reduction of the diverse to the identical would have no chance to operate. So we do well to cherish a habit of thought from which, moreover, we have no escape.

What these three volumes offer is concrete proof of how man thinks, whether as scientist or common-sense man, how man must think, and how his thought at once succeeds and fails. That the scientist, as always inevitably also a metaphysician, aims at results that are a mockery of his efforts, is not for M. Meyerson a realization that leads to a sceptical estimate of thought, for thought is satisfied by this performance, and also it achieves empirical results, comes upon facts that confirm the worth of a method and a principle to which it is anyhow by its very nature committed. The earliest known and the latest scientific theories, the testimonies of numberless scientists, are marshalled in different formations but always to the same end. The same thesis recurs with changing data, restated, reëxamined, enforced with increasing rigor and with more full-blown metaphysical conclusions. It is never simply reiterated, so able is M. Meyerson always to turn to view new facts and to take advantage of the increasing power of his massed evidence to develop its complete consequences. The motives that control our thought are no more present to us in their actual operation than are our other motives, to the scientist no more than to the ordinary man. Only an examination of the history of science can disclose what has directed its course. And the revelation is not only of what has been the motive, but that the motive is provided by the nature of thought in the operation of its *a priori* principle of identity. That it is at variance with the phenomena is not a defect, but a provision for the perpetuation of thought, and an arrangement by which it is always in position to secure results, for nature will never present itself as explicable, but always from its nature and ours as demanding explanation from minds that can never resist the chance again to explain.

Science makes use of two principles, what M. Meyerson calls the principle of legality and that of causality. The first states laws —that water always boils at 100° C. It is by observation and the

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power of generalization that the mind secures specific laws, but the principle of legality requires more than the exercise of these natural powers. It requires a conviction far in excess of any evidence, the conviction of conformity to law. Yet a scientist may well doubt whether he is in a position to discover the particular law of which he is in search, but "never has any scientist worthy of the name doubted that nature, even in its most intimate recesses, was entirely subject to law." (This was written before certain recent utterances.) The principle of legality asserts the indifference of space; wherever the requisite conditions occur they will operate according to law. But time betrays us. The dog that will remain the same wherever I carry him in space, will grow old and die in time, and to explain how this can be we require the principle of causality. "The law simply states that, conditions happening to be modified in a determined manner the actual properties of the substance must undergo an equally determined modification; whereas according to the causal principle there must be equality between cause and effect—that is, the original properties plus the change of conditions must equal the transformed properties" (Eng. trans. of *Réalité et Identité,* p. 41). Quotations from scientists and philosophers show that the formula of Lucretius, *Nil posse creari de nihilo,* or that of Anaxagoras "Nothing comes into being and nothing passes away" are but the proper measures of the meaning of causality. Now the principle of causality is not necessary for action; it is not confirmed but contradicted by our sensations, for these inform us of constant change; it is necessary to our thirst for understanding and so was well called by Leibniz the principle of sufficient reason. Despite various attempts science has made to stick to law, explanation is always also demanded both by common sense and by science. To understand the present we look to the past and so start a process of explanation that works as such only as in some way we equate past with present. Elements persisting under change is the device by which we eliminate time, the series of equated changes being just that herculean achievement of the human intelligence. Identities are differently conceived in different fields—the atom and the conservation of matter and energy in physics, the fundamental element in chemistry, the idea of heredity in biology. The substance of *Identité et Réalité* is the demonstration that all the great historic scientific theories have been sought and cherished as they provided identities, have been valued as they served to show that what underlies appearances are ontological entities persistent in time. In this attitude and performance science is not deliberately philosophical; it is necessarily and essentially so, for explanation, which by na-

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ture we crave, can occur only as through apparent changes we look to the persistent reals that make the changes both possible and explicable,—and also non-existent. We might add that our need so to explain them makes them also need no explanation since explanation thus occurs only as denial.

A brilliant passage in the last chapter of *Identity and Reality* insists on this view of science as fundamentally ontological, and in following passages M. Meyerson draws forth some of the curious and admirable consequences of the perverse wisdom of the ontological habits of thought. To quote scattered passages: "The ontological character of scientific explanation is ineffaceable. Doubtless, through the unity of matter it finally ends in uniform and empty space. . . . If we take the world of scientific theory at the moment, so to speak, when it is going to evolve into nonentity, we shall find it as ontological as that of the reality of common sense; the singular points of the ether, in so far as we differentiate them from their medium by any means whatsoever, will be just as real, just as much *objects,* and even more fundamentally independent of us and our sensation than anything in our perception. Explanatory science, indeed, rejoins absolute idealism or solipsism, but it is only in complete acosmism that these two ways encounter each other. Between these two parallel lines along which science and philosophy, each one by itself, tend to destroy reality, one can not imagine any point in common, except one situated in infinity." "Indeed, in creating science, man has constantly obeyed his causal instinct; starting from sensation, he has unceasingly tried to explain it, to make it yield to the exigencies of his reason. Therefore, what will be most general in science will necessarily be also a form of these exigencies, and, consequently, a conception saturated with the *a priori:* a causal hypothesis such as that of the persistence of qualities and especially the atomic or mechanical theory. And so it is that believing to generalize the results of experience we succeed paradoxically in liberating our conceptions, prior to experience, from the restrictions imposed by experience." "It was wrong to have called causal hypotheses simple instruments of research, 'working' hypotheses. They are more than the scaffolding destined to disappear when the building is constructed. They have their own value; they correspond certainly to something very profound and very essential in nature itself." "We know that reason proceeds from identity to identity; it can not therefore draw from itself the diversity of nature . . . the order of nature can not be entirely conformable to that of thought. If it were, there would be complete identity in time and space—that is to say, nature would not exist." "In postulating the intelligibility of nature it ends in its complete destruction."

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M. Meyerson displays how full of contradictions are the various conceptions by which science provides the identities required. Science shifts from ingenuity to ingenuity to secure explanatory concepts; however "shaky" are the conceptions employed reason will do its best to put up with them, for we must find the world intelligible. Mechanism has had perhaps the longest history and has made the most sweeping claims to explanatory virtue. And yet its attempt to explain all phenomena as arising from identical entities moving in space has had a far from satisfactory development. It has had one of those histories with which M. Meyerson makes us familiar, in which science proposes a description of its explanatory entity only to retreat from the absurdities or inconceivabilities invoked to other forms of entity similarly or worse furnished. Yet science will put up with these since it must have identical entities. And because of what we undertake to explain and the only form of explanation we will accept, nature will always resist explanation. To the objection that we have no more "reason" to find change inexplicable than persistent entities M. Meyerson would reply, that at any rate science has moved in explanation from the diverse and changing to the identical and eternal and that it thus reveals that the reason craves identities.

There is continuous resistance to our efforts by which nature makes them always only paradoxically successful, there are also defined forms of resistance recognized by science in Carnot's principle which provides for science the other aspect of its view of nature.

The validity of the principle of identity is two-fold—in its source in a necessity of our nature, and in what we must come to believe a partial conformity of nature to its implications. Again the partial non-conformity of nature provides its opportunity and also provides nature. "Nor must we ever lose sight of the fact that we do not know where the analogy between mechanism, or, better still, between the causal conception of the world and nature ceases. The only thing of which we are sure is that it must cease somewhere. If, then, we come upon a phenomenon which does not seem to conform to this conception, we doubtless have the right to try every way of making it conform; but we are not permitted to throw it aside, or reject it, if it appears unruly. It may be precisely that the future has many ideas of this kind in store for us. After having sought a long time for what especially persists, science, since the importance of Carnot's principle has been clearly recognized, is turning its attention more and more toward that which is modified, toward perpetual flux, and it is clear that on this ground causal considerations will always be more or less at fault." The argument here would seem to say that thought may

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understand nature in terms of both identity and change. But that would be to refuse to thought its peculiar and single character of explanation, and to refuse to recognize that explanation takes place by reducing apparent change and specific qualities to alleged identities. Though explicative science may not, empirical science may penetrate *becoming*. "Change in time is its proper domain. That is why science is more and more dominated by Carnot's principle." "What it formulates is a tendency of things to be modified in time" (*Identity and Reality*, pp. 284–285). "It is we who try to establish identity in nature, who bestow it upon her, who 'suppose' it hers. And that is what we call understanding and explaining nature. It yields itself to a certain extent, but it also resists. Reality rebels and does not allow us to deny it. Carnot's principle is the expression of the resistance which nature opposes to the constraint which our understanding, through the principle of causality, attempts to exercise over it" (*Ibid.*, p. 286).

But the unconvinced might ask, why should nature oppose our attempts to impose identity upon her at points where the resistance is not that of successful rebellion, if identity is partly her character and if she is partially "in agreement" with the principles of our minds? And why is it fortunate that absolute identity is an ideal of thought, if nature is both changing and identical? Is it on the assumption that the surface appearances of nature, its conspicuous features, are those of change so that it is well that we are fanatic in the pursuit of identities? In the last part of the concluding chapter of *Identity and Reality* M. Meyerson attempts to affect a reconciliation between belief in law which deals with changes and the principle of identity which denies them, but he has to conclude that they operate independently, at least for contemporary man.

In *De L'Explication dans les Sciences* he offers further evidence for the ontological character of science as found in the theoretical difficulties of the positivistic proposals and in the actual and necessary departure from the positivistic program in practice,—a departure always effected by the urge of the principle of identity. He tries to prove that positivism, properly interpreted, would restrict science to sensations only, causal explanations of these in any kind of "thing" behind them being prohibited. And it would be at a loss when it tried to secure the only data permitted it, for these become more and more difficult to find; as M. Bergson has pointed out they are hard to extract, and now, Mr. Boas adds, Gestalt psychology would deprive them of the genetic priority that would give them positivistic purity. Positivism has not felt itself as frustrate as it should; by various methods it has found its way to

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ontological assumptions and goals. The object of common sense, science must *always* replace by other objects whether independent and absolute laws, or chemically pure and therefore ideal substances, or the other children of theory, the fictitious and non-observable entities which science brings forth. Mr. Boas agrees that the scientist does not believe that he is studying his sensations, but he doubts and raises arguments against the contention that a positivistic science is logically committed to phenomenalism. M. Meyerson again interprets these scientific objects as more refined forms of the physical objects of common sense, serving the same purpose, instruments of identification that provide the causal explanation of the variability of sensation. Even in using them the scientist knows in some sense that what makes them serve his purpose is also what makes them fail to serve it, for that they are quite other than what they have to explain both gives them explanatory status and creates anew the problems to solve which they were summoned. Their persistence in science must then be due to a "metaphysical hunger for absolutes," and denotes the *a priori* character of the principle that devised them. Science can not be and is not positivistic, it must be and is ontological. Mr. Boas accepts as authoritative Mr. Meyerson's account of scientific practices, but he raises among others the objections that either science need not in these matters be taken seriously,—or else that the scientist does not take himself seriously, or literally, when he seems to explain by "reducing." He points out especially that "identity" is plainly often not employed in science with a literal or rigid meaning. The term "equation" is employed in science to indicate other relations than that of literal identity, their meanings open to observation. Moreover science and mathematics handle inequalities and other forms of asymmetrical relation. We can reason by the aid of any relation the nature of which we can know; "all forms of relations do not lend themselves to the identification of their relata but on the contrary some presuppose their fundamental difference" (pp. 99–100). Mr. Boas's general objection is that the theory that reason can not grasp changing things is due to the defects of classical logic, to its theory of the concept which introduced the notorious mystery of the relation of the essence to the existent. He outlines the possibilities of a form of reasoning in which the concept is taken as symbolic and practical and in which we deal rather with relations than with equated essences.

In *Déduction Relativiste* M. Meyerson faces the possibility that there has now arrived a new science, which is a consistent positivism, the meaning of its concepts firmly attached to experimental procedure, eliminating not experience but the personal equation,

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aiming not at something beyond appearances but at a kind of "transcendental unity of apperception." Now M. Meyerson admits that the special theory of relativity was a genuinely positivistic science. But the general theory, by its very intention to view the world from the point of view of any observer, that physicists might not be condemned to isolation in some given system of reference, directly contradicts the central point of the special theory, —the recognition of our inability to escape some observer's point of view. The general theory does what has to be done if we are to have a science of physics. Mr. Boas argues that what the general theory carries through is properly described as legalism rather than causalism. M. Meyerson contends that the Einsteinian framework of space-time is the latest attempt of physics to substitute for the permanent physical *object* of common sense a scientific object. Mr. Boas argues—I fear that I damage his argument in transmision—that Einstein's space-time has at least a different kind of ontological status from the common-sense object or the fictitious entities of science; the measurements of individual observers are not denied by but deducible from this conception. M. Meyerson argues further that though some modern physicists would treat time as not on a par with the three other dimensions, still in general they prefer to spatialize it, and so continue to demonstrate the demand of the reason that time as such be eliminated, be reduced to space in the interests of identity. In so far as M. Meyerson's arguments are based on his description of relativity as a geometry, Einstein has protested, against this characterization, that the use of geometrical conceptions does not make of a science a geometry; he is not geometrizing his conceptions, he is discovering what geometry fits them best. He is using a "practical geometry," which "rests essentially on induction from experience, but not on logical inferences alone." M. Meyerson would recognize this in part, from the point of view that nature will not submit itself wholly to rationalization, not that reason is irradiated by or can take any color from the light of experience. He finds here no change in the nature of reason; it still seeks identities. Common sense, science, in its latest as in its earliest developments, turn always from phenomena, from appearances, to "reals" that explain and deny them. In the farthest reaches of thought reduction is resisted at a point just short of nonentity.

I have referred—too slightly—to but a few of Mr. Boas's objections. As against M. Meyerson's authoritativeness, he modestly urges that though they may be ill taken yet they are properly raised, since their answer is not obvious, and that if answered it would be to the still greater impressiveness of M. Meyerson's philosophy. Meantime he can render only the Scotch verdict,—not proven.

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It seems unnecessary to say that there are well-known attempts to give other interpretations to the conceptions that science uses; no doubt science would protest that there has not lurked behind its use of causality the principle of identity, that the entities it employs do not need to be metaphysically intended. (Indeed, and not least frequently in the recent past, certain scientists have made plain their interest in a quite different and quite non-scientific form of ultimate reality.) Yet surely they have often been handled as if of the penetralia, of the inner essence. At any rate there is need of more attempt to show, in distinction from what it is not, what their status is. Bertrand Russell's assertion that "in the motions of mutually gravitating bodies, there is nothing that can be called a cause and nothing that can be called an effect; there is merely a mathematical formula"—seems to offer a mathematical metaphysical heaven. Whitehead deplores such sentiments about mathematics as would make it the Hamlet of the drama in which we try to figure forth the nature of reality, whereas its part is but that of Ophelia,—an essential rôle, a very charming creature—and a little mad. When he adds—"Let us grant that the pursuit of mathematics is a divine madness of the human spirit, a refuge from the goading urgency of contingent happenings,"—is not this to give to human thought the same rôle M. Meyerson describes, if to view it more as a poetic excursion than as a kind of vacation to the final refreshment of science. M. Meyerson would exempt science from any responsibility for defining its motivating principles, for in the first place as unconscious they escape observation, and in the second, science is well enough occupied. Contemporary science, however, shows signs of permitting itself to be seriously philosophical. How far it is dispensing with identical entities as explanatory ideals is perhaps more plain to the participants than to the onlooker. Is the present special concern for "operations," functions, events—stimulated perhaps by recent developments of the philosophy of change—a new implied metaphysics, and the road to a new logic with concepts as averse to permanence as those of the older logic are accused of being averse to change? Is it to reconstruct thought, or to argue for new logical dogmas?

Obviously an answer to M. Meyerson would require arguments that would refute both his interpretation of science and his *a priori* characterization of thought. The first argument would in part provide the evidence for the second, for his conviction as to the *a priori* character is based on the demonstrated presence of the same principle throughout the entire history of science. Other interpretations of science have tended to be in part protests against the habits that M. Meyerson alleges, and so at the same time that they contradict they give weight to his position. Moreover any explicit instances to the

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contrary he would consider doomed to capitulate, as have similar attempts in the past, to the inherent need of the mind,—or to be indeed but self-deceived forms of its search for identities. He acknowledges efforts to maintain the Aristotelian conception of change, but always it is found finally unassimilable—alien to thought. He would deplore neither the capitulation nor the deception, for these are, if curious yet profitable ways by which thought, behaving as it must, reaches a knowledge of what is partly true of things though by the method of denying what is also partly true. In some way science gathers in these denials and transforms them.

How to interpret M. Meyerson's "partly true" is another question to ask, for "partly" here must refer to "kind of" truth, a "sense in which" true, and that is to raise the epistemological problem all over again. It is one of those phrases of avoidance that slip into any dualistic argument. To do no more than assert of each of two contradictory versions that both are partly true is to face the dilemma, not to solve it. So long as thought preserves its natural character of satisfaction only in identities he would say that no solution is called for. His fundamental conviction is that we can believe only in a real that is permanent and self-identical. We are metaphysicians by reason of an unconscious urge, not even by biased preference, for in no sense do we choose. We inevitably seek intellectual contentment and can find it only in one form. Facing change and special qualities, we reject them for the reals we must believe in behind them. What our minds can neither accept nor see a way to reject, in some sense informs us of the other partially true nature of things, but thought can not acknowledge this information (*empirical* science, but not explicative science, may tentatively accept it) and must continue to combat it. It would seem as if the way out would be to reject metaphysics—or this notion of metaphysics; to give up this characterization of intelligibility, rationality. There is, of course, the refuge of scepticism or at least of a "partial" distrust of a reason so perversely occupied. That M. Meyerson will himself take to that is the expectation of the reader at many points in the discussion. He conducts the argument with great dramatic skill, its outcome often in doubt, but it becomes clear enough finally that he sees the perpetual blindness of thought, the perpetual resistance of nature to thought, as ensuring the progress of science. Nor is there opportunity in the situation he describes for correcting these habits of the reason even if they worked ill, or were subject to change. Whatever challenges the principle of identity, only provides for its resumed operation. It is in the nature of the mind always to seek identities as it is in the nature of experience always to give us a chance to; to distrust its use has the irrelevance of futility.

Fundamentally, then, M. Meyerson's theory is, as he says in his

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preface, an epistemology, in which human thought is seen as pursuing ends it is not aware of, persistently, inevitably, in controversion of phenomenal experience. Nature reveals in the phenomena one aspect of itself. Reason, on the conviction that this can not be its nature, discovers the other. If reason could operate as it would, it would overreach itself and would destroy the conditions under which it operates by identifying all existence into nonentity. Thought thus seems engaged in an awkward game of cross purposes, and yet it achieves a perpetual avoidance of disaster, is an instrument of continuously fruitful effort. That reason might come to act in less self-deceiving fashion is idle speculation, and an historian of science will prefer to await the event before having an opinion of its benefits. Meantime all men are unconscious "metaphysicians" enjoying "partial truths," and science as a result of "metaphysical" efforts comes into possession of an increasing amount of "facts."

The reviewer is ill-qualified to transmit, as does Mr. Boas, M. Meyerson's strictly scientific argument or to do justice to the objections Mr. Boas raises. In addition to those that he develops at some length he suggests briefly other possibilities of dissent. He makes plain his enthusiasm for the power and the scope of an argument that yet does not convince him. It will not be his fault if he fails to increase interest in the work of M. Meyerson. We are probably most of us engaged in rejecting rather than in sharing M. Meyerson's notion of reason; if we could share his learning and employ our minds on it with comparable skill our rejection might bear some fruit.

EDNA ASTON SHEARER.
SMITH COLLEGE.

The Principles of Reasoning. DANIEL SOMMER ROBINSON. New York: D. Appleton & Company. Second Edition. 1930. Pp. xviii + 393.

Since the first edition of this work, which appeared in 1924, was well reviewed by Professor M. T. McClure in Vol. XXII, No. 6, of this JOURNAL, there is but little for the present reviewer to say. So few changes, too, have been made in the text that one might well question whether it should not be called a second impression rather than a second edition. There are approximately fifteen pages of new material added here and there, and about one-third of a page omitted. These additions consist of a two-page discussion of the *Gestalt* psychology, as reinforcing the implicative system which Professor Robinson regards as fundamental; about one and one-half pages devoted to the Dewey Decimal System in connection with the author's treatment of classification; a page and a half

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presentation of the Pearson correlation formula; approximately one page added to the discussion of Mill's Method of Residues; two-thirds of a page presenting analogy and circumstantial evidence; and about six pages of new material completing the discussion of various other methods of explanation. There is also a page of definitions of logic, facing the first page of the text, while a chart of the conditional syllogisms faces page 163, and a footnote discussion takes up most of page 215. The chief change, however, appears in the exercises, which are almost entirely new and aggregate about thirty-two pages. These together with those found in the first edition constitute a real treasure-house for such material. The extensive Bibliography of the first edition has also been increased by about a page and a half of new titles. Several errors, typographical and otherwise, which still remain, may, it is hoped, be eliminated, if there should be a third edition. The book has evidently met a real need, since this new edition has appeared about six years after the first one, but, as Professor McClure truly remarked in his review, it is really an introduction to philosophy as well as being a logic, and thus serves a double purpose.

GREGORY D. WALCOTT.

LONG ISLAND UNIVERSITY.

JOURNALS AND NEW BOOKS

PHILOSOPHICAL REVIEW. Vol. XL, 4. An Annonymous Treatise: *Lynn Thorndike.* Some Descriptive Properties of Relations (I): *Henry Lanz.* "The Paradox of the Time-Retarding Journey": *Evander Bradley McGilvary.* On Negative Facts: *A. Ushenko.*

INTERNATIONAL JOURNAL OF ETHICS. Vol. XLI, No. 4. Value as Election and Satisfaction: *R. B. Perry.* Contraception and Altruistic Ethics: *J. M. Cooper.* St. Augustine and the Influence of Religion on Philosophy: *W. W. Spencer.* The Bases of Philosophic Pessimism: *E. T. Mitchell.* Morality and Religion: A Critique of Professor A. E. Taylor's Gifford Lectures: *S. P. Lamprecht.* Notes on the Moralistic Theory of Art: Plato and Tolstoy: *Israel Knox.*

Bayet, Albert: Histoire de la Morale en France. Vol. II—La Morale Paienne à l'Epoque Gallo-Romaine. (Bibliothèque de Philosophie Contemporaine.) Paris: Félix Alcan. 1931. 592 pp. 70 fr.

Brunschvicg, Leon: De la Connaissance de Soi. (Bibliothèque de Philosophie Contemporaine.) Paris: Félix Alcan. 1931. xi + 197 pp. 25 fr.

Conger, George Perrigo: A World of Epitomizations. A Synthesis of the Data of the Sciences. Princeton: Princeton University

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Press. 1931. London: Humphrey Milford. Oxford University Press. xiv + 605 pp. $5.00.

Dingler, Hugo: Philosophie de Logik und Arithmetik. München: Ernst Reinhardt. 1931. 198 pp. 7.50 M.

Emerson, R. W.: La Presenza di Dio. A Cura di Mario Favilli. Firenze: F. Le Monnier. 1931. xxvii + 131 pp.

Hofmann, Paul: Das Problem des Satzes vom Ausgeschlossenen Dritten. (Pan-Bücherei. Philosophie, No. 9.) Berlin: Pan Verlagsgesellschaft M.B.H. 1931. 45 pp. 2.40 M.

Husserl, Edmund: Ideas. General Introduction to Pure Phenomenology. Translated by W. R. Boyce Gibson. With a Special Introduction by the Author. (Library of Philosophy.) New York: Macmillan Co. 466 pp. $5.00.

Meyerson, Émile: Du Cheminement de la Pensée. 3 vols. (Bibliothèque de Philosophie Contemporaine.) Paris: Félix Alcan. 1931. xxvii + 1036 pp. 130 fr.

Murchison, Carl, editor: A Handbook of Child Psychology. (International University Series in Psychology.) Worcester, Mass.: Clark University Press. 1931. London: Humphrey Milford. Oxford University Press. xii + 611 pp. $5.00.

Pipkin, Charles W.: Social Politics and Modern Democracies. 2 vols. New York: Macmillan Co. 1931. xxxiv + 377 pp.; vii + 417 pp. $7.50.

Rand, Benjamin, editor: John Locke's An Essay Concerning the Understanding, Knowledge, Opinion, and Assent. Introduction by the editor. Cambridge: Harvard University Press. 1931. lx + 307 pp. $3.50.

Robinson, Lewis: Kommentar zu Spinozas Ethik. Leipzig: Félix Meiner. 1928. 377 pp. 8 M.

Science and Religion. A Symposium. With a foreword by Michael Pupin. J. Arthur Thomson, A. S. Eddington, H. R. L. Sheppard, J. S. Haldane, L. P. Jacks, S. Alexander, Dean Inge, B. Malinowski, Father O'Hara, Julian Huxley, Canon Streeter, Bishop of Birmingham. New York: Charles Scribner's Sons. 1931. xi + 175 pp. $1.75.

NOTES AND NEWS

We have received the following notice of the Prize Competition organized by the Sociological and Philosophical Societies in Vienna (Soziologische Gesellschaft und Philosophische Gesellschaft, Ortsgruppe der Kantgesellschaft in Wien):

Theme: The Development of the Sociology of Cognition and Knowledge since Wilhelm Jerusalem.
Prize: 1000 Shillings Austrian Currency (30£).

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Wilhelm Jerusalem was the first to demand a sociology of knowledge, in an essay entitled "Soziologie des Erkennens" (Sociology of Knowledge), published on the 15th of May, 1909. His researches in the sociology of cognition and knowledge were continued in his "Einführung in die Soziologie" (Introduction into Sociology, Publications of the Sociological Society of Vienna, 1st Volume) as well as in his treatise "Die soziologische Bedingtheit des Denkens und der Denkformen" (The Sociological Conditions of Thinking and of the Forms of Thinking) published in Max Scheler's *Versuche zu einer Soziologie des Wissens,* 1924.

These essays emphasize the great importance to future thinking of sociological criticism of human reason.

Since then investigations in this field of science have been continued by German as well as foreign scholars. It is the task of the entrant to show this development from the first manifestations up to the present. The competitors have to show on what foundation Wilhelm Jerusalem's doctrine rests, in what way it has affected subsequent work; which of the problems raised by Jerusalem are still waiting to be solved, and lastly what place the sociology of cognition and knowledge is to hold in the joint domain of sociology and epistemology.

The character of the essay should be strictly scientific and the treatment of the matter as objective as possible. The competitor is, of course, given full liberty to put forward his own standpoint. The essay should be 15,000–30,000 words in length. Both shorter and longer essays, however, will be admitted for competition.

The essays may be written either in German, French, English, or Italian. Essays in other languages will also be accepted, but a translation into one of the above-mentioned languages, authorized by the author, must be attached.

In place of the entrant's name each essay must bear a motto; the name and address of the author is to be added in a closed envelope which must be marked with the same motto.

Essays must be sent to Dr. Walther Eckstein, Wien XVI, Kirchstetterngasse 49, not later than the 31st of December, 1932.

The jury consists of: Prof. Max Adler, University of Vienna; Prof. Karl Bühler, University of Vienna; Dr. Walther Eckstein, Vienna; Dr. Rudolph Goldscheid, President of the Sociological Society in Vienna; and Prof. Karl Roretz, University of Vienna.

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There is no similar journal in the field of scientific philosophy. It is issued fortnightly and permits the quick publication of short contributions, prompt reviews, and timely discussions. The contents of the last six issues are as follows:

Volume XXVIII. No. 9. April 23, 1931.

The Place of Repression in Morality. CONSTANCE RATHBUN.
On Defining "Existence." DURANT DRAKE.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 10. May 7, 1931.

Moral Freedom and Power. A. MYRTON FRYE.
The Problem of Gravitation in Aristotle and the New Physics. PHILIP MILLER KRETSCHMANN.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 11. May 21, 1931.

Logical Positivism. ALBERT E. BLUMBERG and HERBERT FEIGL.
How a Logic of "Propositions" Fails of Complete Generality. HENRY BRADFORD SMITH.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 12. June 4, 1931.

George Herbert Mead. JOHN DEWEY.
Mr. Lewis's Theory of Meaning. GEORGE BOAS.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 13. June 18, 1931.

Psychology and the Scientific Method. PAUL HORST.
Are We Machines? And What of It? W. H. ROBERTS.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 14. July 2, 1931.

A Critical Discussion of *Mind and the World-Order*. ALICE AMBROSE.
Book Reviews. Journals and New Books. Notes and News.

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Quarterly. General and experimental psychology. Founded 1887.

Pedagogical Seminary and Journal of Genetic Psychology.—Worcester, Mass.; Clark University Press.
Subscription $7.00. 600 pages annually. Edited by Carl Murchison and international co-operating board.
Quarterly. Child behavior, differential and genetic psychology. Founded 1891.

Genetic Psychology Monographs.—Worcester, Mass.; Clark University Press.
Subscription $7.00 per volume. Two volumes annually, 600 pages each. Edited by Carl Murchison and an international coöperating board.
Monthly. Each number one complete research. Child behavior, differential and genetic psychology. Founded 1925.

Psychological Review.—Princeton, N. J.; Psychological Review Company.
Subscription $5.50. 480 pages annually.
Bi-monthly. General. Founded 1894. Edited by Howard C. Warren.

Psychological Bulletin.—Princeton, N. J.; Psychological Review Company.
Subscription $6.00. 720 pages annually. Psychological literature.
Monthly. Founded 1904. Edited by Samuel W. Fernberger.

Psychological Monographs.—Princeton, N. J.; Psychological Review Company.
Subscription $6.00 per volume. 500 pages. Founded 1895. Edited by Raymond Dodge.
Published without fixed dates, each issue one or more researches.

Journal of Applied Psychology.—Baltimore; Williams & Wilkins Co.
Subscription $5.00. 400 pages. Founded 1917.
Quarterly. Edited by James P. Porter and William F. Book.

Psychological Index.—Princeton, N. J.; Psychological Review Company.
Subscription $4.00. 300–400 pages. Founded 1895. Edited by W. S. Hunter.
An annual bibliography of psychological literature.

Archives of Psychology.—Columbia University Post Office, New York.
Subscription $6.00. 500 pages per volume. Founded 1906. Edited by R. S. Woodworth.
Published without fixed dates, each number a single experimental study.

Journal of Abnormal Psychology and Social Psychology.—Eno Hall, Princeton, N. J.
Subscription $5.00; foreign $5.25. Acting Editor, Henry T. Moore.
Quarterly. 432 pages annually. Founded 1906. Abnormal and social.

Psychological Clinic.—Philadelphia; Psychological Clinic Press.
Subscription $3.00. 288 pages. Edited by Lightner Witmer. Founded 1907.
Without fixed dates (9 numbers). Orthogenics, psychology, hygiene.

Journal of Educational Psychology.—Baltimore; Warwick & York.
Subscription $4.00. 540 pages. Founded 1910.
Monthly (9 numbers). Edited by Harold O. Rugg and coöperating board.

Comparative Psychology Monographs.—Baltimore; Williams & Wilkins Co.
Subscription $5.00. 500 pages per volume. Edited by W. S. Hunter.
Published without fixed dates, each number a single research. Founded 1922.

Psychoanalytic Review.—Washington, D. C.; 3617 Tenth Street, N. W.
Subscription $6.00. 500 pages annually. Psychoanalysis.
Quarterly. Founded 1913. Edited by W. A. White and S. E. Jelliffe.

Journal of Experimental Psychology.—Princeton, N. J.
Psychological Review Company. 500 pages annually. Experimental.
Subscription $6.00. Founded 1916. Bi-monthly. Edited by Madison Bentley.

Journal of Comparative Psychology.—Baltimore; Williams & Wilkins Co.
Subscription $5.00. 500 pages annually. Founded 1921.
Bi-monthly. Edited by Knight Dunlap and Robert M. Yerkes.

Psychological Abstracts.—Princeton, N. J.
Subscription $6.00. 700 pages annually. Edited by W. S. Hunter.
Monthly. Abstracts of psychological literature. Founded 1927.

Journal of General Psychology.—Worcester, Mass.; Clark University Press.
Subscription $7.00. 600–700 pages annually. Edited by Carl Murchison and an international coöperating board.
Quarterly. Experimental, theoretical, clinical, and historical psychology. Founded 1927.

Journal of Social Psychology.—Worcester, Mass.; Clark University Press.
Subscription $7.00. 500–600 pages. Edited by John Dewey, Carl Murchison, and an international coöperating board.
Quarterly. Political, racial, and differential psychology. Founded 1929.

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Vol. XXVIII, No. 16. July 30, 1931.

THE JOURNAL OF PHILOSOPHY

DIALECTICAL ARGUMENTS AGAINST RELATIVE SIMULTANEITY

TIME as it is experienced is, by tautology and therefore without doubt, what it is "experienced as." Unless we experienced it with its simultaneities and its successions, we might talk about "time," but if we did we should not mean by that word what we now actually mean by it. So long as it was not known that light was propagated with finite velocity, there was no reason for distinguishing physical simultaneity from seen simultaneity. Since seen simultaneity was just what it was immediately experienced as, so physical simultaneity was just what seen simultaneity was immediately experienced as; and unseen physical simultaneity was simply seen simultaneity extrapolated. But because what was seen as simultaneous was not necessarily heard as simultaneous, a distinction had to be made between physical simultaneity and immediately experienced simultaneity; the distinction, however, was a distinction between a species and its genus.

This happy state of affairs came to an end when Roemer, discovering that the eclipses of Jupiter's moons did not always occur at the predicted times, accounted for this discrepancy to the satisfaction of astronomers and other physicists as due to the finite velocity of light. From that time on, not all seen simultaneity could be treated as identical with physical simultaneity; only *some* seen simultaneity could be so treated. *Physical simultaneity was seen simultaneity of events at equal distances from the observer.* Let us call this "Definition 1." According to this definition physical simultaneity is not "a logical primitive."[1] We may admit, if only for the sake of argument, that the genus, "seen simultaneity," is logically primitive; but the combination of genus and specific difference is not so, unless we maintain that a concept which is capable of analysis is still logically primitive.

At any rate, it is significant that the definition italicized above defines physical simultaneity by the introduction of a *spatial* factor.

[1] "The Dialectical Argument against Absolute Simultaneity," by Arthur O. Lovejoy, this JOURNAL, Vol. XXVII., p. 626. Hereafter in this paper all page references, not otherwise assigned, are to this article, which appeared in two instalments, pp. 617–632, 645–654, November 6 and 20, 1930.

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What we are trying to define is a time-concept; but somehow, in the process of definition, it reveals itself as a space-time concept. We should not therefore be surprised if in the further consideration of physical simultaneity its inextricableness from space should remain to puzzle us with our naïve notion that time is time and space is space, and that logically never the twain shall meet. Nor should we stand aghast when we hear Minkowski, as mathematical *physicist*, say: "Henceforth space *by itself*, and time *by itself*, are doomed to fade away into mere shadows, and only a kind of *union of the two* will preserve an independent reality."[2]

Now the observer who *sees* physically simultaneous events as simultaneous does so because light from such events arrives simultaneously at his physical eyes; and since "most physicists," as Lovejoy says (p. 621), are too realistic "to be content with so subjectivistic a definition" of simultaneity as one that includes any psychological factor like seeing, it is not strange that they should, in their definition of physical simultaneity, replace the observer by *any physical object* at which light arrives. Just when "seeing" occurs in the course of natural events is not the immediate concern of the physicist as physicist; it may occur immediately upon the arrival[3] of light at the eyes of the observer, or it may lag behind the time of this arrival by some as yet unmeasured interval. It is not the arrival of light at the "seeing" (whatever that may mean) or at the "mind" that sees, that interests the physicist, but the arrival of the light at some *physical object*, e.g., his eye. We can then revise our Definition 1 thus: Physical simultaneity is the time-relation between two physical events, light from which arrives

[2] I quote from the translation of Minkowski's "Space and Time" by Perrett and Jeffery, in the collection of memoirs by Lorentz, Einstein, Minkowski, and Weyl, entitled *The Principle of Relativity*, Methuen & Company, Ltd., London, 1923, p. 75. The German volume is entitled *Das Relativitätsprinzip*, Teubner, Leipzig and Berlin. I shall refer to the 5th edition of the work, 1923. The present reference is to p. 54. The italics in the quotation just made are mine.

[3] When I speak of the "arrival" of light at any place, I do not wish to be considered as taking sides in the dispute as to whether light is "a thing that travels." The "arrival of light at a place" is, in this paper, to mean no more than the occurrence at that place of an electro-magnetic process because some electro-magnetic process has occurred elsewhere. Whether, in the time-interval between the two occurrences, continuous processes occur between the two places involved, makes no difference in my present discussion. I wish to file a similar *caveat* with reference to the use of the expression "the propagation of light." Just as a man may speak of the "rising" of the sun whether he believes that "the sun do move," or whether he believes that it is the rotation of the earth that gives rise to the appearance of the "rising" of the sun, so one may speak of the "departure," or of the "propagation," or of the "arrival," of light, without necessarily committing oneself on the question whether light actually *travels*.

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simultaneously at a physical object equally distant from the places of the two events. This definition keeps in touch with what simultaneity is "experienced as," inasmuch as the two events *would be* immediately "experienced as simultaneous" *if* there were any observer at the place of the arrival of the light. Here as elsewhere through our discussion we assume the constancy of the velocity of light.

But suppose that the object that receives the light is moving toward one of the sources of light, and away from the other. Well, let us then exclude such a case from our definition. We now revise our previous revision and give "Definition 2": Let A, B, and O be any three places at fixed distances from each other, the distance A-O being equal to the distance B-O. *Physical simultaneity is the time-relation between any event at A and any event at B, light from which two events arrives simultaneously at O.* If A and B should be the same place, the above definition holds, *because then O is equally distant from the two events.* In other words, Definition 2 covers cases in which two events occur at the same place and also cases in which two events occur at a fixed distance from each other. But cases of the former class have the distinguishing characteristic that *any point O chosen at random* is equally distant from the two events, whereas, if A and B are at a distance from each other, only those points that lie on a line perpendicular to the line AB and passing through the point M midway between A and B will satisfy the condition laid down for O. Thus we see that physical simultaneity defined as in Definition 2 has *the same connotation* for events at the same place and for events at different places.

But we may revise our definition still further. Let A, B, and P be any three points at fixed distances from each other, and let m be the distance A-P, and n be the distance B-P. Let t_1 be the time of arrival at P of light from an event at A, and t_2 be the time of arrival at P of light from an event at B. Then the time at which the light started from A is $t_3 = t_1 - m/c$, where c is the velocity of light; and the time at which light started from B is $t_4 = t_2 - n/c$. Now, if $t_1 - t_2 = m/c - n/c$, then $(t_1 - m/c) - (t_2 - n/c) = 0$. Translated into the vernacular, this means: *If the time-interval between* (a) *the arrival at P of the light from A and* (b) *the arrival at P of the light from B is equal to the difference between* (c) *the interval between the departure of the light from A and its arrival at P, and* (d) *the interval between the departure of the light from B and its arrival at P, then physical simultaneity is the time-relation between* (e) *the departure of the light from A and* (f) *the departure of the light from B.* This is our "Definition 3." It includes Definition 2 as a special case in which $m = n$. It also includes the case in which

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P is identical either with A or with B since in this case the time-interval between the departure of the light from A (or from B) and its arrival at P is zero. Thus Definition 3 meets the demand made by Lovejoy: "The 'what' of 'simultaneity,' in short, may be—and, if the word is to be used in the sense familiar to all mankind, must be—the same wherever the events of which it is predicated" (p. 629); and we have also a definition that indicates the procedure for determining the "that" of physical simultaneity.

If it be objected that our Definition 3 is not a definition but a test of simultaneity, I can only quote Lovejoy: "A proposition asserting the simultaneity of two events is, obviously, an assertion concerning the magnitude of the time-interval between them—namely, that the interval is equal to zero" (p. 624). I do not know whether this means that for Lovejoy the simultaneity of two events "means" that the interval between them is equal to zero, or whether for him it means that a zero-interval is a "test" of simultaneity. At any rate it is an *adequate* test. Now Lovejoy has himself often urged, in argument against the epistemological monist, that immediately experienced simultaneity is *not* an adequate test of physical simultaneity. But if physical simultaneity is to be distinguished from immediately experienced simultaneity, and if the function of a definition is adequately to distinguish the definiendum for purposes of identification, I know of no way to define physical simultaneity as differentiated from immediately experienced simultaneity except in terms of an assumed uniform velocity of some kind of signal over measured distances. Can Lovejoy suggest a better way?

But there is still another characteristic of experienced simultaneity that we should carry over with us when we extrapolate simultaneity, namely, its transitivity. If, of three events, the first and second are simultaneous, and the second and third are simultaneous, the first and third are also simultaneous.[4]

The definitions above given of physical simultaneity are, of course, not original. They have been implied in the use of the concept of physical simultaneity for some two centuries and a half.

[4] I am not at all sure that in immediate experience this is always the case. We are all familiar with the fact that such transitivity of equality is not realized in immediate experience in the case of weights. In the same way, do we always experience a first and third event as simultaneous, when we experience the first as simultaneous with the second, and the second as simultaneous with the third? Perhaps this question is put in too simplified form; it may be that more than three events are necessary to exemplify what is a lack of precise discrimination in our immediate experience of simultaneity. But this whole question (which can not be adequately discussed without raising the whole question of "epistemological dualism") is irrelevant to our present interest, which is concerned with the fact that we do insist that physical simultaneity shall be transitive.

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It was the merit of Einstein that he expressly formulated them. Definition 3 is in substance the one given in his first paper, "On the Electrodynamics of Moving Bodies."[5] Definition 1 is that given in his popular book,[6] from which Lovejoy quotes under the abbreviated title, "Relativity." But Lovejoy finds *three* different definitions of simultaneity in Einstein, and he finds an arbitrariness in one of them, whereas the reader will admit, I trust, that the definitions that I have given, following Einstein, are not arbitrary. At least he will perhaps admit that, if they are arbitrary, the arbitrariness runs back to Roemer and has since become habitual in science and in common sense. Let us quote Lovejoy:

> in fact he [Einstein] recognizes three different possible definitions corresponding to three classes of pairs of events about the simultaneity of which question may be raised—though only the third is important for his main argument. (i) There is, first, psychological or subjective simultaneity, the conjunction in a single specious present, in the experience of one individual, of two or more sense-data or other items of content. . . .(ii) There is, however, one class of physical events in which psychological simultaneity may be regarded as the virtual equivalent of physical simultaneity—viz., those events which occur in the immediate vicinity of one another and of the body of the observer. Where there is very close proximity in space, the observer may treat the time at which an event is perceived as approximately the same as *its* time; and if he has set up clocks the readings of which are determined by some convention, he may "understand by the 'time' of the event the reading (position of the hands) of that one of the clocks which is in the immediate vicinity (in space) of the event." (iii) This, however, aside from being only a definition of approximate or virtual physical simultaneity, does not apply to events which are distant in space from one another, and at least one of which, therefore, must be distant from the place occupied by the observer—since he can not be in two places at once. . . . The required definition, then, must be in terms of the following operation: Let the distance A-B on the line joining the loci of the two events be actually measured off on some rigid reference body by laying down a measuring rod in the usual manner; [This is vague: the reference body should be at rest with respect to "the loci of the two events." But let this

[5] See pp. 39–40 of the translation in *The Principle of Relativity*, mentioned in footnote 2, and see also p. 28 of the German *Das Relativitätsprinzip*. Einstein's paper of 1905 I shall hereafter for brevity refer to as "*Electrodynamics.*" I have said above that the definition given by Einstein in this passage is substantially the same as our Definition 3. Einstein first gets clocks at A and at B (these points being at a fixed distance from each other), whose equal readings are simultaneous by our Definition 3, applied to the case where P is identical either with A or with B. Then events at A and at B, which are respectively simultaneous (by our Definition 3, applied to the case where P is first identical with A and then with B) with the simultaneous clock-readings at A and at B, are simultaneous with each other, by the postulate that simultaneity is transitive.

[6] *Über die spezielle und die allgemeine Relativitätstheorie* (*Gemeinverständlich*). VieWeg & Sohn, Braunschweig, 5te Aufl., 1920. Hereafter I shall refer to this book as "*Relativitätstheorie.*" I regret that I have not at hand the English translation to refer to.

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pass.] let an observer be placed at a point between *A* and *B*, and equidistant from them, and let him be provided with instruments (e.g., mirrors) "which allow him visually to observe both places *A* and *B* at the same time" —or more precisely, which allow him to observe the arrival of light-signals from those places at the same time. If he then in fact perceives at one and the same instant the arrival of two light-rays known to have been projected or reflected from *A* and *B*, the events indicated by the two signals . . . may be said to be simultaneous. Such, then, is the new experimental and physical definition of simultaneity from which revolutionary consequences are shortly to follow. It is to be borne in mind that, according to Einstein, this is the only definition of the term, applicable to physical and distant events, which has any meaning whatever (pp. 621–623).

As to definition (i), which is not for Lovejoy at issue, I can only say that I *presume* that Einstein recognizes "psychological or subjective simultaneity," although I doubt whether he would subscribe to the looseness of Lovejoy's identification of what "is manifestly a logical primitive" (p. 626). Events may be conjoined *successively* in the specious present as well as simultaneously. But I don't happen to remember any discussion by Einstein of such "psychological simultaneity."

When we come to definition (ii), a protest is in order. I can find nowhere, in either of the two Einsteinian documents I have referred to, any indication that Einstein regards psychological simultaneity "as the virtual equivalent of physical simultaneity"; Lovejoy supposes him to do so because when events occur "in the immediate vicinity . . . of the body of the observer" he "may treat the time at which an event is perceived as approximately the same as *its* time." As a physicist Einstein has shown no interest in the question of the time of the perceiving. It is not the time of the *seeing* that Einstein wishes to determine, but the time of what is seen; and this, not in relation to the time of seeing, but in relation to the time of something else seen. Lovejoy thus introduces a factor into Einstein's definition of physical simultaneity that may be of great interest to the philosopher or to the physiological psychologist, but a factor in regard to which Einstein as physicist has taken no position, so far as I remember, in his physical memoirs. Let us keep extraneous matters out of our discussion. Definition (ii) of Lovejoy's list is nowhere recognized by Einstein as a definition of physical simultaneity, whether "virtual" or not. It is *Lovejoy's* definition foisted on Einstein, with the result that he can count "three."

But this is an infinitesimal peccadillo compared with what follows. With regard to definition (iii) Lovejoy says: "Einstein himself (*Relativity*, pp. 27–28), it should be noted, insists that he is not here making either 'a supposition or a hypothesis about the physical nature of light,' but merely a 'stipulation in order to arrive at a

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definition of simultaneity' " (p. 622). This "insistence" is taken as proving that Einstein's definition is "mainly a free or arbitrary definition—a verbal and not (as some of his interpreters suppose) a 'real' proposition. In three points, two implied, one explicit, it is not arbitrary. It is assumed that the term to be defined must designate a *relation between events;* . . . and that this is something distinguishable from the purely spatial relations of distance and direction between the events in question." Besides these tacit restrictions, "he expressly accepts the restrictions of the general experimental theory of meaning" (pp. 645).

As to "the experimental theory of meaning," Einstein does not say that a physical definition is a statement of an operation to be performed. He says: "Es bedarf also einer solchen Definition der Gleichzeitigkeit, dass diese Definition die Methode *an die Hand gibt,* nach welcher im vorliegenden Falle aus Experimenten entschieden werden kann, ob beide Blitzschläge gleichzeitig erfolgt sind oder nicht."[7] The definition must *furnish* a method. The definition of a circle is not a definition of the method of ascertaining whether a figure is a circle, but from the definition one can know how to go about finding out whether a figure is a circle. The circularity of a circle is not the method employed in discovering whether it is a circle, but a character discovered by the use of the method *suggested* by the definition. Professor Bridgman (if Professor Dewey in *The Quest for Certainty* is correct in interpreting him) has given only one of at least two possible definitions of an "experimental definition," or of an "experimental concept"; and that definition is not the one that Einstein gives here.

Let this pass, and let us quote further:

> But if these are the only antecedent limitations to one's freedom of definition . . . why should Einstein's be regarded as *the* definition of distant-simultaneity, all others being spurious? . . . Einstein offers no reason whatever for supposing that no "empirical definition" except his own is possible; and in fact many others are manifestly conceivable. One such . . . has been pointed out by M. André Metz. . . . It would, suggests M. Metz, be an equally "empirical" definition "if one substituted the term 'sound' for 'light' in the formula." . . . This would assuredly seem to common sense, as it does to M. Metz, a wrong definition, because the propagation of sound is by them supposed to be already known, in advance of the definition, to be not isotropic; but this objection arises only because both M. Metz and common sense assume an already given "natural concept of simultaneity," the fulfilment of which would not be shown by the joint-arrival of the signals at the mid-point *M* unless their velocities over the distances *A-M* and *B-M* were known to be uniform and their times of transit over these distances therefore equal. . . . But Einstein accepts no such ready-made *a priori* conception . . . and it is not because he already *knows,* or can even meaningfully assume, that light is isotropic and sound is not that he defines simultaneity in terms of the joint-arrival of light rather than of

[7] *Relativitätstheorie,* § 8, p. 14. The italics are mine.

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sound-signals at the point *M*. This he is himself careful to point out. He imagines a critic who raises the objection that his definition presupposes a previous knowledge of the fact that light always traverses equal distances in equal times . . . and that it would therefore "appear as though we were moving here in a logical circle." But Einstein replies that his "definition assumes absolutely nothing about light. . . . That light requires the same time to traverse" the two paths "is in reality neither a *supposition* nor a *hypothesis* about the physical nature of light, but a *stipulation* which I can make of my own free will in order to arrive at a definition of simultaneity." . . . In short, in order to avoid circularity in his definition, Einstein finds it necessary, not merely to define "simultaneity" itself arbitrarily, but also to define arbitrarily one of the terms entering into the former definition. . . . We are to understand, then, that Einstein's definition of simultaneity-at-a-distance is, and is by its author intended to be, one adopted "of his own free will"—subject only to "the one demand," or at most the three demands, already mentioned [pp. 646–647].

With apologies for a blunt outright contradiction let me say: We are to understand no such thing, and the reason we are not is that *Lovejoy has attributed to Einstein* words that *Einstein expressly attributes to the "reader"* with whom he represents himself as discussing the question; and Lovejoy has attributed to an imaginary *"critic" of Einstein's definition* the criticism that *Einstein himself* makes against the *reader's suggested definition.* Any one who reads even cursorily the passage from which Lovejoy quotes should see that in it Einstein is attempting to lead the popular reader—the book is *gemeinverständlich*—to the adoption of Einstein's own definition and, if he is a careful reader, to a recognition of the assumptions underlying the definition. In the course of this guidance the reader is induced to propose a definition, against which Einstein urges an objection; the reader revises his definition, and Einstein urges another objection, and so on. (It is impossible here to quote the passage in full.)[8] Why should the positions taken by the persons in the dialogue be reversed when passages from the dialogue are quoted?

But this is not all. Lovejoy does not wait till Einstein has finished his say. He should have quoted more. Immediately following the sentences he quotes without the quotation marks that Einstein uses, the latter proceeds: "It is clear that this definition can be used in order to give an exact meaning to the assertion of the simultaneity, not only of *two* events, but of any number of events whatever, however the places of the events may be spread out (*gelagert sein mögen*) relatively to the reference body." Then he adds a footnote: "We assume further" the transitivity of simultaneity. "This assumption (*Annahme*) is *a physical hypothesis concerning the law of the propagation of light; it must be unconditionally fulfilled* (*sie muss unbedingt erfüllt sein*) *if it is to be pos-*

[8] *Relativitätstheorie*, § 8, pp. 14–16.

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sible to maintain the law of the constancy of the velocity of light in vacuo" (my italics). Thus Einstein accepts the reader's definition and his discretionary stipulation, but only after revision of the latter. It is too free. To be consistently applicable it must carry with it the physical assumption of the constancy of the velocity of light.[9] (That Einstein has put this in a footnote should not mislead any one who knows that in a popular work written by an expert, footnotes are likely to be quite important.) It is a pretty generally recognized principle among logicians that a definition is to be understood in terms of the postulates under which it is framed. In the case before us, Einstein inserts the footnote, just quoted, and thus corrects the "reader," *before* he proceeds to remark: "Herewith we arrive also at a definition of 'time' in physics." Note that he does not say "the only possible definition." As we shall see, he had given another definition in another work. But the two definitions agree in using the principle of the constancy of the velocity of light, and in recognizing that "simultaneity" is the time-relation between events the time-interval between whose occurrences is equal to zero. The two definitions differ as to the *method* of determining when events are thus simultaneous.

But it was not only in a footnote that Einstein stated his acceptance of the law of the constancy of the velocity of light *in vacuo* as presupposed by his definition. In § 7, immediately preceding the section from which Lovejoy quotes, Einstein gives several experi-

[9] Lovejoy is apparently not responsible for the translation he gives, since Professor C. I. Lewis gives the same translation, although the latter preserves Einstein's quotation marks (*Mind and the World Order*, pp. 254–256). Lewis, however, gives the reader the impression that Einstein leaves the "stipulation" *without physical presupposition* as the last word in his discussion.

The German for "of my own free will" is *nach freiem Ermessen*. There is a world of difference between acting "arbitrarily" and acting "at one's free discretion." An ambassador who is given free discretionary powers is not thereby authorized to act arbitrarily. College authorities who expel a student "at their free discretion" would find themselves in trouble with the courts if this discretion were arbitrarily exercised, as for instance in expelling a student because his father had died.

The "reader" in the case before us, who is using his free discretion in establishing a fixed basis (*Festsetzung*) on which to build his definition of simultaneity, seems in fact to be taking the position of common sense, which, as Lovejoy himself says, "supposing itself to be already well acquainted with what is meant and implied by 'simultaneity-at-a-distance,' finds therein reasons for holding that light-signals are at least *more* serviceable than sound-signals [or anything else available] as means to inferring, from a given point, whether two events remote from that point did or did not occur simultaneously" (p. 646). The "reader" would probably say "for determining" rather than "for inferring," since he has been called upon to give a definition available to a physicist (or to a layman) *for the purpose of determining whether the concept to be defined is applicable in a controverted case*. Using his judgment (*Ermessen*) he chooses light as affording the best basis for such a definition.

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mental reasons for accepting this law, and then calls upon the reader to assume (*annehmen*) that "the school child is correct in believing in the simple law of the constant velocity of light *in vacuo.*" When, in view of the principles of classical dynamics, it appears inevitable "to surrender either the Principle of Relativity or the simple law of the propagation of light *in vacuo,*" he represents the "*reader*" as certainly expecting to hold fast to the Principle of Relativity and to surrender the law. But *he himself* says that "the development of physics showed that this way is not open." The researches of Lorentz showed that experiments in the fields of electrodynamics and optics "lead with compelling necessity (*mit zwingender Notwendigkeit*) to a theory of electromagnetic processes, which has as its inevitable consequence (*zur unabweisbaren Konsequenz*) the law of the constancy of the velocity of light *in vacuo.*" Hence the leading theorists were disposed to hold to that law and let the Principle of Relativity go. "It was here that the Theory of Relativity came in. By an analysis of the physical concepts of time and space it was shown that as a matter of fact there is no irreconcilability between the Principle of Relativity and the law of the propagation of light." Immediately after the paragraph in which this statement is made, the dialogue begins between Einstein and the reader. Has Einstein given up the law of the constancy of the velocity of light while turning over a page of his manuscript?

There are two words of Einstein in this dialogue that might be cited against the interpretation I have given. He introduces the reader's disavowal of any presupposition as to the physical nature of light, with a remark quite in the spirit of Plato. He says: "After some further reflection, however, you [reader] justifiably (*mit Recht*) give me a somewhat scornful look and explain to me. . . ." Why the words "*mit Recht*" if Einstein does not accept the reader's views? I venture the suggestion that these words express a recognition by Einstein that the reader is on the right track; that he has the right to use his discretion in selecting a basis for an experimental definition. But to be on the right track is not equivalent to seeing to the very end of it. Einstein later points out that the reader is wrong in not seeing the physical implications of his selection. Be this as it may, the words "*mit Recht*" are the only show of support for Lovejoy's interpretation; and it surely is doing violence to Einstein's language to attribute to him a meaning which he expressly attributes to the "reader" and which he expressly repudiates in the footnote to the first sentence immediately following. This violence becomes more apparent when we remember what Einstein had said just before this dialogue began.

But this is not all. The book from which all this is taken is a

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popular book, and in a footnote to the first sentence of the *Preface* the author refers the reader to some of his previous publications collected in the volume entitled *Das Relativitätsprinzip.* This volume contains the famous "*Electrodynamics,*" in the first section of which Einstein says of the description of "the *motion* of a material point" in terms of "the values of its coordinates as functions of the time," that "a mathematical description of this kind has no physical meaning unless we are quite clear as to what we understand by 'time.' We have to take into account that all our judgments in which time plays a part are always judgments of *simultaneous events.*" The question then arises as to how to define simultaneity. After rejecting some possible suggestions, he proceeds: "We arrive at a much more practical determination (*zu einer weit praktischeren Festsetzung*) along the following line of thought."[10]

He then proceeds to give what is substantially our Definition 3. Immediately thereafter he says: "We assume that this definition of synchronism is consistently possible, and that too for any number of points, *therefore* that (*dass also*) the following relations are universally valid:—

"1. If the clock at B runs synchronously with the clock at A, the clock at A runs synchronously with the clock at B.

"2. If the clock at A runs synchronously with the clock at B as well as with the clock at C, the clocks at B and C also run synchronously with each other."

Then on the next page, at the beginning of the next section, he says: "The following reflexions are based on the principle of relativity and on the principle of the constancy of the velocity of light." *After* thus stating clearly his postulates and his definition of simultaneity made under the control of these postulates, he proceeds to deduce the Special Theory. Thus there is no shadow of a doubt that in 1905 Einstein wished it to be understood that his *Festsetzung* was not arbitrary; it assumed the reflexiveness and the transitivity of simultaneity; and also the constancy of the velocity of light. Still another assumption as to physical simultaneity is made by Einstein in the course of the development of the Special Theory: he assumed that any events occurring at *any* two points in a plane perpendicular to the relative motion of any two systems, if simultaneous in either system, are also simultaneous in the other. In spite of all these assumptions that restricted the "arbitrariness" of Einstein's definition of simultaneity, Lovejoy now asks us to be-

[10] *The Principle of Relativity,* pp. 38–39; *Das Relativitätsprinzip,* pp. 27–28. Note here the same word *Festsetzung.* The sequel will show that *this Festsetzung* also is made under the assumption of the transitivity of simultaneity. In what follows I have made some changes in the translation, especially to bring out the force of "*also.*"

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lieve that "so careful a writer," as he himself has characterized Einstein (p. 627), gave his definitive view of simultaneity in a passage put into the mouth of a "reader," in which the latter spoke of exercising his free discretion, without assuming anything as to the physical nature of light.

Is it not evident that Lovejoy's main contention in his attack upon the relativistic conception of physical simultaneity, namely, the contention that this conception is arbitrarily chosen in order to "permit the [relativistic] conclusion desired to be drawn" (p. 649), is based (1) on an amazing mishandling of quotations and an ignoring of quotation marks and of context, with the result that the positions taken by the interlocutors in Einstein's brief dialogue are completely interchanged; (2) on Lovejoy's failure to note the footnotes in a popular book written by the author he is criticizing; and (3) on his failure to compare the popular version with the technical presentation in the "*Electrodynamics,*" to which the popular work refers at the very outset? Lovejoy has unquestionably read quite widely about relativity; why did he not read Einstein's first paper, which laid the foundations of the theory he is criticizing? If he did read it, why does he ignore what that paper clearly laid down as its initial postulates, and then proceed to criticize the author of that theory for doing exactly the opposite of what the author actually did in that paper? One would think that Lovejoy's knowledge that "other expositors of the theory explicitly recognize that an already experimentally-established factual proposition about the behavior of light-rays must here be introduced into the argument in order to justify the definition" (p. 622), would have served as a warning against the kind of misinterpretation he himself dares to give.

If space permitted, I should like to examine the other contentions of Lovejoy's article. *Nach meinem freien Ermessen,* they are all as unsound as the main contention I have discussed. But I must pass to the last point he makes, and discuss it, since, if he is correct on this point, the theory of relativity is of course impossible. Let me quote him quite at length. He says that

> Einstein himself does not adhere to the relativistic conclusion [as to the relativity of simultaneity] . . . and that he can not do so without vitiating his argument. For, after he has ascribed to each moving system a "time" of its own, in which events simultaneous on any other such systems are of differing date, he continues to speak of periods of time during which the two systems are in motion with respect to each other, and during which, also, some determinable number of events is occurring on each. *While* such and such things are happening on S, . . . such and such other things are happening on S'. Now this sort of proposition can have no meaning if there is no *common* duration with a common measure, to which the motion of both systems with respect to one another, and the two series of events, are referred. You can not say that while S moves to the right S' moves to the left, if there are in

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reality simply two distinct "whiles," one definable solely with reference to S and the other solely with reference to S'; for in that case, you will have isolated the two systems so completely from one another that the relation called "motion" can no longer be conceived to subsist between them. There must, in short, be a common "while" between any two systems of which relative motion is asserted. But if there is a community of "whiles" there must also be a community of "whens," unless motion, change, and time-lapse are assumed to be discontinuous [pp. 653–654].

This argument seems to assume that motion is merely a matter of *time;* surely without *space* there can be no motion. This is implied in saying, "while S moves *to the right,* S' moves *to the left.*" Let us resort to the case of the fictitious twins that seem to have fascinated Lovejoy. Peter and Paul part from each other; the departure is an event that the two can experience in common. They meet again; here is another event they can experience in common. There is a time-interval for each between the two experienced events; but this interval is one in which motion is occurring—it is not merely a time-interval; it is a space-time interval. The relativist assumes that this space-time interval is identical for both. What is *not* in relativity identical for both is the *measure* of the time-factor in the common space-time interval. What Lovejoy does is to isolate the time-factor and the space-factor, and then claim that because in relativity the measure of the space-factor and the measure of the time-factor are respectively different for the two systems, there can be no *common* "duration."

But let us ignore the fact that there is a space-time interval involved. Let us consider the *time*-interval alone. The relativist properly objects to identifying his relativity with the *felt* relativity of the duration, say, of a lecture on relativity. To one person the lecture is long and to another it is short. The relativist objects because it is *unmeasured* durations that here are thus compared. But even here one need not say that there is not a community of "whiles," defined as the interval between the beginning and the ending of the lecture, both the termini being experienced in common. It is the *same* "while," that is long for one and short for the other—the same because identified by the same two terminal events. Now, before relativity came along, common sense accepted the proposal to give a physical measure to this "while," by "timing" the beginning and the end of the lecture by some physical process open to the inspection of each listener. The lecture began at eight o'clock by the clock on the wall, and ended at nine (or was it ten-thirty?) by the same clock. The duration of the lecture was still the interval between its beginning and its end, but this duration was *measured* by another interval, *viz.*, the interval between the reading "8" of the hour-hand of the clock and the reading "9." It is not because the

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interval between the beginning and the end of the lecture has a common measure for both listeners that the duration of the lecture is a common duration; it is common duration because its beginning and its end are common. But this duration has a common measure for both listeners if the movement of *that* clock is adopted by both for taking the measure.

Now in relativity this still holds. Measured by the *same clock* the length of the duration of any time-interval is the same for every one; but measured by two different sets of clocks, one in motion relatively to the other, the length of that interval differs with the differing sets of clocks used for the measurement. If you and I are in relative motion, and I agree to use *your* clock as the measure of the interval between any two events, I (even if I were a relativist in physics) get the same length for that interval as you do. But if I use my clock and you use yours we need not (even if we are not physical relativists) get the same length. Does such a failure prove that there is not the same "while" that we thus measure with different results? The statement that there is no meaning for "while" unless there is "a *common* duration with a common measure," inverts the logical order. A common measure is possible only if there is something in common to be measured. When something in common is thus measured, it is assumed in physics that with an identical measuring instrument under identical conditions a common measure will be obtained by all measurers if the measurements are *ideally* made. But it is not necessary in physics to assume that, with different measuring instruments, even under *symmetrical* conditions (as in two systems in unaccelerated relative motion), a common measure shall be obtained; and of course in the case of two observers in relative motion it is only symmetrical and not identical conditions that can be realized when measuring the same duration; and in relativity the different "whens" are obtained by the use of different instruments, *viz.*, different clocks. Even Lovejoy admits that there is nothing inconceivable in the theory that clocks in relative motion fail to keep the synchronism they had when relatively at rest—without knowing the implication of the admission. He says in another paper: "But the variations of chronometers with varying conditions are likewise not wholly foreign to ordinary experience . . . he [Paul] would . . . feel a natural surprise on learning that in no respect had time-measurements on the earth kept in accord with his. Yet even this would not amount to a contradiction—not even if Paul retained a prejudice in favor of Newtonian time; and he could therefore, with no excessive difficulty, accommodate his mind to the conception."[11] Relativity-*physics*, like any other physics, is

[11] "The Paradox of the Time-Retarding Journey," *The Philosophical Review*, January, 1931, Vol. XL, pp. 50–51.

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only a *metrical* physics. If chronometers do not run at the same rate on two relatively moving systems, and if each observer employs his own chronometer in measuring a time-interval, observers on two such systems, each using *only* his own chronometer, may have a common duration to measure and yet not get a common measure for the common duration.

After pointing out what I take to be extremely serious mistakes in Lovejoy's article and hinting that there are others, I am very glad to be able to subscribe to one statement he makes: "Philosophers ought not, I venture to suggest, to take over from physicists and mathematicians a new fundamental logic and a new metaphysics without a more active exercise of the critical faculty than has thus far—with some notable exceptions—been apparent" (p. 618). But even here I should wish to question whether this logic is so radically new, although of course it is not just the kind of logic that Lovejoy uses.

One may object to unwarranted criticisms of a theory without unconditionally subscribing to it. As I have maintained elsewhere,[12] it seems possible to deal with such experimental results as those of Michelson-Morley, Sagnac and others, without the use of the theory of relativity. Whether physical relativity be accepted for good and all remains to be seen. At present it apparently has in physics the field all to itself. As to the four-dimensional space-time interval of Minkowski I have serious misgivings: it treats the expression *ct* as a time-vector, whereas it seems rather to be a *space*-measure, since it is velocity multiplied by time. That this vectorial treatment works out beautifully in mathematics is unquestionable. But whether the mathematical "dodge," as Eddington calls it, whereby this is achieved results in a *physical* space-*time* measure is a question. But this is not the place to develop this doubt. If this doubt has a standing, it must be because it can be shown to be based on an understanding of the theory. At any rate, if it be the business of the philosopher to study relativity, it is also his business to exercise his "critical faculty" not arbitrarily but with discretion.

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A NOTE ON THE TIME-RETARDING JOURNEY

IN connection with the "Paradox of the Time-Retarding Journey" which has caused so much discussion amongst metaphysicians and rationalists, and which has recently been so admirably analyzed by Dr. Lovejoy,[1] I wish to point out some additional features which

[12] "Times, New and Old," The Annual Howison Lecture, University of California Publications in Philosophy, Vol. 6, No. 4, 1928, pp. 229–264. See especially pp. 253 ff.

[1] *Philosophical Review*, January, 1931.

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so far as I know have not yet been touched upon. It appears to be admitted by all that in the two-system complex of motion of the twin brothers, Paul and Peter, the system of either brother may be considered as at rest or in motion, each with respect to the other. That is, if Paul takes it into his head to travel off at such a rate of speed leaving his brother Peter rooted to the spot in amazement and with nothing to do but to think it over, we may say that Paul is moving and that Peter is at rest. But anybody who cares to do so may with equal reasonableness say that Paul is at rest and that Peter is flying off into space. Whichever way we may look at it any of us might be pardoned the insinuation that both of the brothers were off on a fool's errand, and that little good was liable to come of it. But there is a third way to regard the relative movement of the hasty brothers, and that is to consider that they split up the amount of motion available so that each takes his proper share of it, and as a result we may consider that they are both moving. Depending on their natural capacities and on their personal predilections for action, we might extend the proposition even a little further and consider that Paul was the more energetic of the two and went twice as fast as Peter. There would be a considerable shift in the results of the paradoxes if this double motion was brought into the question. Since there is no more reason to suppose the one to be moving in preference to the other, there is, indeed, greater propriety in admitting the idea that both are moving.

There is, however, another point which does not seem to have been introduced. If Paul had decided to travel as fast as the relativists permitted he would surely have supplied himself with some sort of vehicle, whether a Ford or not is a matter of personal taste. We will suppose, however, that this vehicle is supplied with proper gear for assuming the responsibilities of the journey, that it is furnished with a good set of tires and a spare wheel in case of accident, and, of course, it has a speedometer properly adjusted to the rotating wheels so that the speed and the mileage can be properly observed. Otherwise, how would it be possible for Paul to know that he was going at the speed required in the problem? Much has been said about the clock on the machine that is carrying Paul, but the clock, in my opinion, is not nearly so important in its implications as the speedometer, for it does not keep a record of either time consumed, velocity attained, or space actually travelled. The clock only tells the position of the sun with respect to itself, and this can not have very much meaning in a problem where the existence of the sun is neglected, or at least it makes little difference as to what its position may be. If by introducing the clock the instigator of this paradox had the idea that he was in some manner or other bringing time into it, it would seem to me to be a rather clumsy kind

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of time, and one which it would be exceedingly difficult to justify or accurately define. As the time which was allowed to elapse in the problem amounted to much over a day of twenty-four hours, and in fact rose up to as high as 200 years in the case of Peter, who was supposed to have been left behind, an ordinary clock would have been of little avail, and in the absence of any instructions to the contrary we have to suppose that it was an ordinary clock. By looking at the clock running for such a long period of time we would not know whether it was four o'clock to-day or next Thursday, or even of this year or thirty years hence. In other words, just what meaning an ordinary clock has in this connection I fail to grasp; it seems to me to be a totally useless encumbrance and incapable of telling us anything at all about "time" in relation to the journey of Paul.

But not so in the case of the speedometer, which would show a record of the speed attained and the total space traversed. And there is another very important point in this connection, and this is that both Paul and Peter would have a chance to tell which of them was actually moving. For if Paul were moving, he at least would observe that his wheels were going around while Peter's were not; also that his speedometer was functioning, whereas Peter would find his not indicating any movement. The scheme of employing measuring sticks for laying off the distance traversed in this trip, is impracticable, in fact, I would say that it is impossible. Outside of the fact that these measuring sticks shortened up in the direction of the motion, Paul would be moving far too fast to be able to make any application of them during his trip. The speedometer is by far more practical and accurate than the measuring stick, for not having any particular length, it would not be susceptible to the same eccentricities of standardization as the stick. Besides it would furnish a direct and continual measurement with an uninterrupted adjustment of totality, whereas the use of the stick would require a tremendous amount of bookkeeping and adding machines to keep track of the distance covered. It is true that the wheels of the car carrying Paul would have to go around with considerable activity to reach the speeds demanded in the problem, but this surely does not present any greater difficulties than those connected with the movement of Paul himself and his clock through space.

And this leads us up to another point which apparently has been neglected in the construction of the problem. A great deal of the proposition has to do with the perception of the clock carried by Paul through the senses of Peter remaining on the earth. Now as both Peter and the clock are supposed by definition to be moving at speeds approximate to or equaling the velocity of light, or 186,000 miles per second, if we will pause for a moment and give de-

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liberation to the limitations of our optical apparatus, we will have to acknowledge that Peter would not be able to perceive either Paul or his clock at all. A bullet or even a large shell from a high-velocity gun is invisible to us even though these slowly moving objects have only a velocity of a few thousand feet per second. The objection here might be made that, on the contrary, we see a distant star which is supposed to be moving at much greater speeds than a bullet. But as a matter of fact we do not see the star. Even through the most powerful telescopes all we see is a point of light. It is from the behavior of the latter in our various instruments, particularly in the spectroscope, where the little point of light is expanded into a spectrum band of color, that we infer the existence of the star and a good many other things about it which are more or less problematical and dependent upon the interpretation of our presentations of the instrument. It is true that we, or rather the astronomers, seem to know a lot about the stars; in fact in many cases we know much more about these distant foreigners than we do of our next-door neighbor. But all our mathematical rationalizations concerning the stars do not cover up the fact that all we have really perceived is a mere point of light. If we bear these things in mind in treating the Relativity Problem we would feel a little temerity in expressing some of the hastily deduced conclusions that seem to spring up so unexpectedly to perplex our rather confused minds.

While we are on this question there is still another point to which I would like to call the attention of the Relativists and their host of analytical critics. In all discussions of the particular problem under consideration it is assumed that Paul undertakes his trip like a lone Lindbergh going forward through the midnight empyrean in what he would consider a straight line. Just why he considers it a straight line and just how he determines that it is a straight line and just how he maintains a constant course upon it are all very important points to be decided in the Relativity Problem, for many of the implications are dependent upon these features. As a matter of fact, if Paul and his clock travel forward as *objects* in a straight line, they are apparently the only objects in the universe that do so. It might be interjected here that light travels in a straight line; but light under these circumstances has to be treated merely as a vibration and not as a moving *object,* otherwise its velocity would be a variable function dependent upon the velocity of the body from which it was ejected. The motion of light in a straight line, besides, is a matter of *a priori* definition; for that is what a straight line is, the path of a ray of light. Now since every other body in the universe, from the smallest electron to the largest star, travels in a closed elliptical orbit, and since these

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elliptical orbits are considered as located not in straightaway space but in a plane consisting of the surface of the Minkowsky curvature, it is reasonable to presume that the journey of Paul would be of the same order. It is easy to see that the movements of Paul as witnessed by Peter from a supposed state of rest on the earth would present a rather complicated track to follow. In fact, I am somewhat of the opinion that the very self-imposed conditions of the Relativity Problem would require the services of a highly expert mathematician acting in the interests of Peter in order that the latter might be kept informed of the actual whereabouts of his twin brother. The simple arithmetical spatial relations as given in the popular presentation of the Problem and which thus lead to the paradoxes in question, are totally without any real meaning within the scope of either the Special or the General Theory of Relativity. They merely represent absurd attempts to find things in this problem which are really not there at all, solely for the purpose of confusing the non-mathematical mind with impossible constructions. By carrying over into the implied conditions of the Relativity Theory a series of conceptions and ideas based entirely on the perceptual relations of the ordinary everyday earthly experience which has to do with a state of affairs in no wise moving with a velocity approaching that of light, the Paradoxicans are enabled to set up sophistical doctrines that seem to be substantiated by the definitions of the problem. It is true the conditions of the Relativity Theory are present in these earthly experiences as well as they are in the rather remarkable problems posited, but their influence is so minute that they are entirely without significance or recognition. They are like the infinitesimal left-overs in the differential calculus that drop out of the equations simply because they are too small and too insignificant to be retained within the meshes of our intellectual net.

This orbital motion of Paul and his clock is of course subject to the same reciprocal relation as that pertaining in the straight away speculation; that is to say, Paul may be considered at rest and Peter may be considered as the moving member of the family, and under the circumstances as outlined, the motion of Peter as observed by Paul would be subject to rather eccentric and complicated wanderings through space, and it would require a clear mathematical mind to follow them with certainty and precision. There would be a further complication in the fact that the speedometer of Peter would remain at zero all the time while that of Paul would be spinning around to high records, and this, perhaps, would be an inexplicable situation to both Paul and Peter. But without pursuing this feature of the case beyond the point of merely calling attention to it, and returning to the proposition that Paul is really supposed to be doing the traveling, since we have concluded that actually he

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must be moving in an elliptical orbit confined to the planar surface of a Minkowsky curved space, it is easy to see that Paul will eventually return to the point from which he started, even though his motion may be considered as continually forward and never reversed. His journey away from his brother will not be the same path as his journey of return to home and family. Now the question arises, how will this necessity of orbital motion with its implication of successive returns of Paul and his clock, or as the case may be, of his speedometer, to the point of departure, affect the paradoxes in the problem? I believe they will very greatly affect them and under the circumstances a whole new set of paradoxes will have to be constructed. But this I will leave to those who possess a congenital inclination towards such things, and who are more competent mathematically to perform the necessary transformations than I am.

There is one last point to be considered that has also been neglected in all the presentations of the Problem that I have run across. This is the complexity introduced by the axial rotation of the earth. Now this is a form of motion that is not dependent on the relation to any other object or point of reference outside of the earth itself. If the earth was the only object existing in the universe any motion of translation, whether straightaway, curved, periodic, or what not, would be incapable of existence, or if it were even capable of existence, it would be absolutely meaningless; as motion at all would be impossible except as it is a change of position, and as there would be no position in the universe except that in which the earth happened to be, and as the earth could not move away from itself, it would always be in the same position. Confining our attention for the time being to Peter who would be greatly concerned with the gyrations of Paul, who by his departure from the earth had become a second object in an otherwise unpopulated universe, we would find that our home-loving twin would also be involved in a predicament, which probably he would have no way of investigating, because the predicament is a perturbation without his own system of reference, though it is doubtful if he has at his disposal any method of experiencing it. The fact that his earth was rotating on a set axis could only become aware to him directly by its effect on the relative positions of surrounding objects. For otherwise Peter would be like any of us at the present time, perfectly unaware of any motion of the earth at all and firmly convinced, just the same as we are, that the earth is the one heavenly body that is at rest; that it is the one fixed, immovable point in all space, the permanent position of rest which serves as the zero point for all coördinates of space, time, and velocity. But just the same Peter would be subjected to a rotary movement of his own fixed position, and while he would not be able to experience the cause of his mix-up, neverthe-

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less, the fact of this rotation would have considerable influence on determining his perception of the movements of Paul and his clock, or even his speedometer, if we are allowed to introduce this into the problem.

J. MERRITT MATTHEWS.

SAN DIEGO, CALIF.

BOOK REVIEWS

Der Begriff der Tatsache in der positivistichen Philosophie des 19. Jahrhunderts. LUCIA GRUNICKE. Halle: Max Niemeyer. 1930. 199 pp.

Positivism might almost be called "Fact-ism," if the latter sounded a little less harsh to the ear, for it professes to be the philosophy which confines itself to facts and their relations. Little argument is needed to establish the obvious centrality, in any discussion of positivism, of the question: "What is a fact?" So crucial is its importance that the author of this monograph alleges that it can be only answered in terms of whole systems. What any individual positivist means by a fact can be fully understood only in the light of his entire philosophy.

In this book she undertakes to apply this thesis to the systems of Comte, John Stuart Mill, Spencer, Laas, Schuppe, Avenarius, and Mach. The resulting study is largely one of German positivism in the nineteenth century, which, as everyone knows, differs in many respects from the French and English varieties. The writers most thoroughly treated are the idealistic or "economical" positivists rather than their more empirical brethren, who receive, on the whole, short shrift. Auguste Comte, the author maintains, is rightly regarded as the founder of positivism, but he is by no means "a typical positivist" (one suspects that this should read "a typical German positivist"). He relied naïvely on the facts of the natural sciences, by which he meant what had been "observed" in accordance with scientific criteria which he did not take the trouble to scrutinize. Self-analysis by the knower he rejected, and with it any possibility (Professor Lévy Brühl's protestations to the contrary notwithstanding) of a genuine psychology. Laws and facts have for Comte the same degree of objectivity, and the subjective factors in both are deplorably slighted. John Stuart Mill took a more sophisticated position: facts, for him, are admittedly facts of consciousness, and are divided into the purely subjective and the partly objective, the latter referring merely to "the unknown and inscrutable process by which the subjective or psychological fact is brought to pass." Facts rest upon sensations, and ultimately upon the mysterious causes of sensations. How the "unknown cause," Body, affects the "unknown re-

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cipient," Mind, in such a way as to make inductive knowledge reliable, remains a puzzle. Herbert Spencer similarly evokes relative knowledge in terms of sensations from two absolute unknowables. He goes beyond Mill in endeavoring to base sensations upon a metaphysical foundation, an absolute which can be known to exist and yet remains itself unknowable. He did not distinguish clearly between categorical and empirical ordering-principles, says the author, or between his "inner" and "outer" relations. The classic English and French positivists are thus indictable on at least two counts: they can not get along without metaphysics; and their theories of knowledge, to put it mildly, lack psychological subtlety.

The latter, of course, German positivism abundantly supplies. Ernst Laas, in many ways its clearest representative, also achieves a singular degree of abstention from metaphysics. The core of his doctrine is his emphasis upon the notion of perceptions (and possible perceptions) as indications of correlations between subject and object. When these inseparable subject-object correlations are examined further, however, it is the objective aspect that gains in importance. Objects are neither "in us" nor "outside us," but are rather "in relation to us as we are in relation to them." Kant, although he is recognized as *"halbpositivistisch"* by Laas, was writing mere psychology. *"Wir haben zu lernen, nicht zu 'machen.'"* Wilhelm Schuppe resembles Laas in beginning with a given fusion of subject-object in which the ego appears as the first and surest of facts. What appears to be headed for subjective idealism turns out to be a doctrine of immanence, in which an outer world exists independently of (although it is only discoverable in) a sort of common consciousness. Richard Avenarius likewise takes experience as his point of departure, refines it, and emerges with a "pure experience" that is neither "physical" nor "mental," except for purposes of discourse, but rather an aggregate of homogeneous elements which may be arranged into many sorts of systems. This expands enormously the domain of the factual, for, according to Wundt, Avenarius regards as a fact "anything that belongs among the contents of pure experience." Ernst Mach shares with Avenarius this breadth of hospitality toward all manner of "facts." Anything experienceable may be a fact. For it to become a fact for us, however, its neutral elements must go through a process of complex-making that we call thinking. But by building his known world from sensations, Mach runs a great risk of slipping over into metaphysics.

The book closes with an all-too-brief critical comment on positivism, especially in the light of Kant, which confines itself to pointing out its fundamental epistemological problems: those of a starting point for knowledge (all the given, or what parts?), and of the

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disputed division (as between subjective and objective) of the various elements which constitute facts. Since Kant, the roads open to the positivists have been fairly well defined. If the subjective elements are not to be entirely withdrawn from nature, they must be located in some scheme of progressive discovery or invention of natural laws by men and nature acting in concert. Comte's contribution was the idea of a collective knower enlarging the stock of relative knowledge (relative in several senses) through distinguishable historical epochs. But this, according to our author, does not solve the real problem of positivism, which concerns the determination of the nature and validity of scientific thinking *überhaupt*, apart from all historical considerations whatever.

All positivists, it seems, agree in being relativists about knowledge, but what many of them do not seem to realize is that if knowledge is to be suspended in some sort of subjective-objective concatenation in the midst of nature, many kinds of relativity are involved. It is, therefore, just as illegitimate to construct a theory of knowledge around a single kind of relativity as typical, as it is to construct an absolute from an arbitrarily selected sample of human experience. Both are measures of economy which misrepresent life. Positivism will continue to display its traditional weakness in epistemology until some one appears who refuses to oversimplify the complexities entailed in any theory of knowledge which rejects transcendentalism. It may even turn out that the positivists, like their arch-opponents, the absolute idealists, but for a different reason, may have to wait until all facts are known before they can be sure what a fact is.

HAROLD A. LARRABEE.

UNION COLLEGE.

The Problem of God. EDGAR SHEFFIELD BRIGHTMAN. New York: The Abingdon Press. 1930. 209 pp.

In the present volume are incorporated a series of lectures, delivered on the Adams Memorial Foundation of the First Methodist Episcopal Church of Bloomington, Indiana, the Church of the Wesley Foundation at Indiana University, together with a Goldwin Smith Lecture delivered at Cornell University in 1929. The book is planned "for those who have problems and who sympathize with the problems of others" (p. 9). It is not a point of criticism, therefore, that the discussion is attuned to catch the popular ear, and would not be unwelcome in the same women's clubs which Walter Lippmann has so naughtily invaded (p. 14). The opening lectures, in which "Contemporary Doubt" and present-day "Substitutes for God" come in for strong handling, make the way easy for the lay reader, with neat flings of wit and irony: "the rising tide of doubt":

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"a new crop of doubters every month"; "the first preface to morals was framed by that famous early doubter, Cain, when he asked, 'Am I my brother's keeper?' "; "even pleasure-loving and materialistic hedonists among the Greeks and Romans, like Epicurus and Lucretius, doubted only the divine interest in human affairs, not the reality of divine beings"; and so forth. Labels, such as "theist," "skeptic," "anti-theist," are attached to the usual names—Freud, Watson, Darrow, Barnes, Clemenceau, Huxley, Russel, Vaihinger, Nietzsche and company. But in addition they are flung at some newcomers—O'Neill, Krutch, Lippmann, and Cohen, and pinned on the more tender-minded Hoeffding, Mauhner, Ziehen, Sellars, Dewey, Alexander, Spaulding, Perry, and Bosanquet. A motley crew, to be sure; but alike in one respect, and that is sufficient; all of them have taken occasion to criticize severely the doctrine of personal theism which Dr. Brightman anxiously defends. Most of them have contributed to the list of "substitutes" for God, of which Dr. Brightman is so scornful.

The fundamental thesis of the book is that the doctrine of a personal Supreme Being is on the whole the best hypothesis in terms of which fundamental questions can be answered and fundamental problems solved. The evidence for this thesis, marshalled in the sixth lecture, is scarcely original. It is drawn from familiar and admitted facts; law and order in the universe described by science; the emergence of novelties in the course of evolution; the existence of human personality and human values; the purposive aspects of nature; and the orientation of religious experience towards an external object of devotion. The organic interpenetration and unity of these facts, their "systematic coherence," constitutes the final argument. ". . . reality is one ongoing system, an incessant activity controlled by rational laws and achieving consciousness and value. Such a reality is better understood as the life work of a Supreme Person than in any other way. . . . Acceptance of the proposition that he exists and manifests himself in the ongoing of experience leads to the most connected and coherent view of our experience as a whole" (p. 162).

It is perhaps superfluous to point out that everything is established except the essential point, the necessity of interpreting these facts in terms of a Divine Being. The admission, customary in treatises of this sort, that the existence of God can not be proved with the finality of a mathematical demonstration, indicates that each bit of evidence is meant more as corroboration than as definite proof: "if God is, this is the sort of thing one would find in His universe." And when the author concludes the whole matter by stating "We believe that God exists" (p. 162), there is nothing more to say.

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Yet it may not be amiss to point out that a different approach to the problem might have avoided the need of taking refuge in a confession of faith. The discussion opens with the *idea of God* as its problem, not with the *facts of experience* and their need for religious interpretation. "The Problem of God has grown out of the conviction that the idea of God is in need of revision" (p. 9). The main task of the philosopher is to prove or disprove the existence of a reality corresponding to the idea. Of course the idea may need some patching up; in fact, as we shall see below, the author tries his hand, with interesting results. But the method is apologetic, not philosophical. "Here is an idea philosophy must reckon with. What are its advantages, its contributions? What has it meant in the lives of men? What are its weaknesses? Can we remedy them without serious damage? Are there any real substitutes? What shall we lose if we lose the idea of God?" Might not the same question be directed toward any concept, true or false, partial or adequate? "What did mankind lose when it ceased to believe in the idea of the flatness of the earth?"

The fundamental futility of this method of attack lies in its inability to envisage the real problem, in its inability to ask a new question. It is aware of the unsolvable contradictions, the inherent antinomies within the idea of God itself. The neatest section of this neat book are the chapters (III and IV) entitled respectively "The Expansion of God" and "The Contraction of God." They present in concise and suggestive formulation the paradox involved in the notion of a Supreme Being who is magnificent enough to comprehend within his being the universe which modern science has discovered, and who is at the same time tender, just, merciful, compassionate, "mindful of his own." But when asked for a way out, it can only suggest another epicycle. It is ready to admit the chaos of argument and discord which the idea engenders. But it is helpless before the impasse; it must confess, "We can not hope to agree on an idea of God" (p. 111). It must rationalize the failure: "The argument for God, especially for the highest idea of God, will not be convincing to all" (p. 112). It must take refuge in a special insight, in a revelation of values to a few (p. 112).

This impotence pervades even the more original part of the book, the lectures (Chapters V and VII) in which the author endeavors to relieve the idea of God of its fundamental paradox by modifying the orthodox conception in the direction of a less free and unlimited deity. As this constitutes the more important contribution of the treatise, the author may speak for himself:

> The Given is the source of an eternal problem and task for God. It is irrational, not in the sense of being given to logical contradictions, or immoral purposes, but in the sense of being given to reason as a datum and not

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derived from rational premises or purposes. In itself it cannot be understood; yet an understanding use may be made of it, and through the conquest and shaping of its meaning may be achieved. Our hypothesis is that God can make an increasingly better conquest of it throughout eternity without ever wholly eliminating it. The divine perfection, then, is an infinite series of perfections [pp. 182–183].

If we suppose that God is eternally both matter and form, then from eternity to eternity the divine reason is unchangingly rational, yet also from eternity to eternity the divine will has The Given as a stimulus to activity and as a source of problems to solve [p. 190].

It is needless to list the many ways in which this doctrine is ingeniously elaborated, or to comment upon the tender feeling with which the author expresses his sense of human suffering and frustration, and the philosophical issue involved. As an endeavor to reshape the traditional picture of deity along more merciful lines, the book modifies and elaborates the suggestions of William James and H. G. Wells with a metaphysical imaginativeness neither possessed. It will afford comfort and sustenance to many people who have become aware of some immediate difficulties in holding to the religious symbols of Christian theism, but are not ready or equipped to make a radical readjustment.

This is to say that the *Problem of God* belongs to the Ptolemaic era in the philosophy of religion. It revolves within a set of concepts whose inherent self-contradictions have long disappointed any hope for a realistic and coherent interpretation of the object of religious devotion. None of the antinomies disappear; their locus is merely shifted—this time to a place within the psychic life of the deity. The philosopher is still confronted with the insoluble problem of assimilating within a Supreme Personality that which is categorically antithetical to personality—the irrational, the material, the gross, the impersonal.

For a generation or two the religious experience in all its aspects has been intensively studied. Its cycle of development has been outlined; its place and value in human experience begin to be clear. No informed person is any longer "anti-religious." The study has also been extended to the objective reference of the experience, to the "environmental stimuli," the "divine qualities of existence," which call forth the religious attitude. To describe these as accurately and as scientifically as possible has been a major task of most of the thinkers whom Dr. Brightman accuses of inventing "substitutes for God." In carrying out this task, a revolution in the field of religion has been wrought comparable to the Copernican in the realm of astronomy. It is not too much to say that the spadework of psychologist, sociologist, and philosopher has done more in thirty or forty years to clarify the idea of God and to vindicate religion than many centuries of theologizing. It is almost inconceiv-

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able that any person could so utterly misunderstand what his own age is doing.

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JOURNALS AND NEW BOOKS

REVUE DE METAPHYSIQUE ET DE MORALE. 38e Année, No. 2. Y a-t-il une philosophie chrétienne: *E. Bréhier.* La non-existence de l'existence: l'idéaliste pur et le réaliste hypothétique: *C. Ladd-Franklin.* De la vraie et de la fausse conversion (*suite*): *L. Brunschvicg.* Les débuts philosophiques de Descartes: *L. Robinson.* Les aspects principaux de la philosophie allemande contemporaine: *E. Von Aster.*

Bennett, Charles A.: The Dilemma of Religious Knowledge. Edited with a Preface by Wm. Ernest Hocking. New Haven: Yale University Press. 1931. xv + 126 pp. $2.00.

Carbonara, Cleto: Léon Brunschvicg. (Biblioteca di Filosofia) Napoli: Francesco Perrella. 1931. 72 pp.

Childs, John L.: Education and the Philosophy of Experimentalism. With a foreword by Wm. H. Kilpatrick. (The Century Studies in Education.) New York: The Century Co. 1931. xix + 264 pp. $2.00.

Gillet, M.: La Philosophie de M. Meyerson. Ètude Critique. (Archives de Philosophie, Vol. VIII, Cahier III.) Paris: Gabriel Beauchesne. 1931. 116 pp.

Archives de Philosophie, Vol. VIII. Supplément Bibliographique, No. 3. Paris: Gabriel Beauchesne. 1931.

Lewis B. Roland: Creative Poetry. A Study of Organic Principles. Stanford: Stanford University Press. 1931. London: Humphrey Milford, Oxford University Press. xi + 399 pp. $5.00.

Pfeiffer, Johannes: Das lyrische Gedicht als ästhetisches Gebilde. Ein Phänomenologischer Versuch. Halle (Saale): Max Niemeyer. 1931. 113 pp. 5.50 M.

Rickert, Heinrich: Die Heidelberger Tradition in der deutschen Philosophie. (Philosophie und Geschichte 33.) Tübingen: J. C. B. Mohr (Paul Siebeck). 1931. 21 pp. 1.80 M.

Smith, Henry Lester, and Littell, Harold: The Philosophy of Human Relations.—Individual & Collective—A Source Book. (Bulletin of the School of Education, Indiana University, Vol. VII, No. 3.) Bloomington, Ind.: Bureau of Coöperative Research. 1931. 326 pp.

Sprietsma, Cargill: We Imperialists. Notes on Ernest Seillière's Philosophy of Imperialism. New York: Columbia University Press. 1931. 153 pp.

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NOTES AND NEWS

We have received the following notice concerning the publication of Nicolai Copernici: *De revolutionibus orbium coelestium libri sex.* E codice qui in Bibliotheca Nostitziana Pragae servatur, cum consensu possessoris. Lucis Ope Depictum. Sumptu Speculae Astronomicae Rei Publicae Bohemoslovenicae Pragensi. Praefatus est Q. Vetter, Ph.D.

Nicholas Copernicus finished his celebrated work about 1530. The first printing was made at Nuremberg by Georges Joachim Rhaeticus between 1541 and 1543. This first edition differs from the original manuscript, in which several changes were introduced later. This edition has served as the foundation for all later editions.

The manuscript changed owners, and the world of scholarship lost sight of it in course of time. Copernicus had entrusted it to Rhaeticus, after whose death, in 1574, it passed to the Library of Valentin Othon, pupil and editor of the work of Rhaeticus. On December 19, 1603, it was acquired by Professor Jacques Christmann of Heidelberg, whose widow sold it, January 16, 1614, to Jean Amos Comenius. After the sack of Fulnek, at the end of 1620, the library of Comenius fell into the hands of the Spanish army, but, by a happy chance, the manuscript had become, by 1626, the property of the Baron, later Count, Nostitz de Praha. In 1840, it was discovered by Dr. Hillardt and April 30, 1840, Dr. K. S. Amerling, proclaimed this discovery by a first notice published in the appendix of the journal "Kvety."

The International Astronomical Union, which assembled in 1922 at Rome, recommended the publication of the manuscript in facsimile. For this reason, the National Observatory at Prague and the International Committee of the History of the Sciences at Paris, have decided to publish, with the authorization of the actual owner, M. Erwein Nostitz-Rieneck, a photographic facsimile in heliogravure of the manuscript of Copernicus on condition that sufficient funds can be procured following this invitation for subscriptions.

The manuscript has 212 pages. A sample page of the reproduction can be obtained. Subscriptions are taken until October 1, 1931, at the price of $35.50 for the bound volume. The price to the public will be $44.40.

Subscriptions should be sent to the Observatoire National de la République Tchécoslovaque, Klementiunum 1, p., Praha, I. Czechoslovakia.

The 1931 Meeting of the American Psychological Association will take place at the University of Toronto, Toronto, Canada, September 10, 11, and 12.

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THE JOURNAL OF PHILOSOPHY

A THEORY OF VALUE DEFENDED

I

SINCE the publication of my *General Theory of Value* in 1926 a considerable new literature has appeared, dealing with this subject in general, and also, to some extent, with my own theory in particular.[1] If I say "my theory" it is with no sense of proprietorship. Naturally I should prefer to regard it as *the*, or even *a* theory, since its merit, if it has any, lies in its adequacy and internal consistency rather than in any relation to my own doctrinal predilections. Feeling no proprietorship I have thought it best not to reply to objections as they have appeared, as in self-defence one parries thrusts aimed at one's own person; but rather to wait until enough such objections had appeared to justify a restatement or revision of the theory as a whole, in which I might profit by new light or the exposure of salient weaknesses.

There is always a temptation to complain that one's readers have not understood, or that they have missed the points most dear to the author. There is an inescapable feeling that if readers would return to the text, and reread it with greater intelligence and more loving patience, they would find their objections to have been already anticipated and met. I am compelled, however, to admit that this is a chronic complaint among authors, and that it probably implies some defect, of statement, if not of doctrine, in the original text. One should be prepared to learn from the inattention or misunderstanding of readers, as much as from their specific criticisms.

I may be permitted, indeed, perhaps, expected to say that my, or (speaking of the theory) *its*, head is bloody but unbowed. This

[1] I am especially grateful for the consideration which my ideas have received from J. Laird, *Idea of Value;* M. E. Clarke, *Study in the Logic of Value;* De W. Parker, H. H. Dubs, and C. M. Perry, "Symposium on R. B. Perry's *General Theory of Value,*" *Inter. Jour. of Ethics*, XL (1930), pp. 465 ff; O. A. H. Pell, *Value-Theory and Criticism;* and in private correspondence, from N. Hartmann and A. P. Brogan. I regret that Professor Ross's recent book has come to hand too late for me to take account of it in the present articles.

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courage on my part arises primarily from the wide range of the objections. A writer who is assailed by many critics is first affected by despair, that his enemies should be so numerous and beset him on every side. Upon reflection, however, he is encouraged to discover that no two of his enemies attack him at precisely the same point. Though they encompass him completely, their line is thinly held. Though they attack the same citadel, they do not attack the same breastworks; and may even, if the fight be prolonged, be led to attack one another. In other words, when *all* of my ideas are criticized, and my critics are scattered among them, I have good hope of resistance; whereas if they combined their attack upon any one idea, I might feel compelled to yield it. Or, if I may assume that my critics accept what they do not explicitly reject, and if I have ten critics, each rejecting one of ten ideas, then each of my ideas is nine times confirmed.

II

First, let me briefly restate the view which is elaborated in the book.

1. I, being an English-speaking person, examine systematically that domain to which my attention is directed by a certain set of words, of which the most common are "good," and "bad." Seeking to discover the broad lines or general structure of this domain, I find that:

2. There is a pervasive character of things which consists in their being the objects of certain acts or dispositions having the peculiar opposition of favor and disfavor. These acts I call "interests," positive and negative; and of their objects when so regarded I propose to say that they have "value," positive and negative.

3. I attempt to set forth in some detail the nature of interest, and find that it is fundamentally *motor* or *conative*. It is action, or a disposition to act, *for* or *against* that which I call its object.

4. Beyond its motor character the most important feature of interest is its intimate relation to cognition. There is a cognitive *constituent* of interest, which is its accompanying expectation regarding the interest's object; and this cognition will vary in the degree of its explicitness, being at its minimum in appetites, impulses, and feelings, at its maximum in deliberate volition. There is also a *supervening* cognition, in which the interest itself is known, whether to the subject himself at the time of his interest, or to a second subject. When this latter cognition is formulated it becomes the "judgment *of* value," the former, or constituent cogni-

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tion, being the "interest-judgment." Both judgments may be true or false, but the interest-judgment need not be true in order that the interest, and hence the value of its object, shall occur.

5. I find that interest may vary quantitatively in several ways, and I derive from these quantitative variations of interest a meaning for the comparative and superlative forms of value, positive and negative, i.e., for "better," "best," "worse," and "worst." There appears to be only one principle of quantitative comparison applicable to different interests, namely, "inclusion," or the principle that *a* and *b* are greater than *a*.

6. In terms of the principle of inclusion I formulate a standard or ideal of maximum inclusion. This standard is "universal" in the sense of being applicable to all interested activity; and absolute in the sense that the judgment which applies it is true independently of the interest or opinion of the judge from whom it proceeds.

7. I suggest, and hope at some later time to make clear, that there are specific varieties of interest, and of relations of interests, which are characteristic of sub-divisions of the general domain which we took as our original field of inquiry: sub-divisions commonly designated by such relatively specific terms as "rectitude," "beauty," "piety," "sovereignty," and "wealth." The field designated by "true" seems to me (provisionally) not to involve interest, but only a kindred act which I call "expectation."

8. The system of concepts briefly outlined seems to me to serve, better than any other system with which I am acquainted, to bring order and coherence into the discourse in which the above and like terms (whether general such as "good," or specific such as "right" and "beautiful") are employed; and to correlate that group of cultural activities known as ethics, esthetics, religion, politics, economics, and science.

9. I do not claim that the results of my study coincide either with verbal usage or with common sense. Verbal usage is inexact, and common sense is largely a product of habit. The demand for theory arises from the fact that no thoughtful person *can* abide by either of them. There is a presumption in favor of common sense, but this means only that common sense contains a precipitate of experience and reason for which theory must find a place. Verbal usage can not be recklessly violated without misunderstanding or irrelevance, but it is a very different matter to suppose, as some philosophers do, that it is only necessary to elucidate what is already meant. In any case, it is important as far as possible to *find* characters, structures, and relations, and in so far as they are found the question of nomenclature becomes comparatively unimportant.

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10. Of prime importance is the difference between the theory of the practical and the exercise of practical judgment. The philosophy of value has often played into the hands of social scientists of the positivistic school by encouraging the view that philosophers mean simply to *apply* a standard to social phenomena. This the social scientist rightly dismisses as irrelevant, or embraces within his own descriptive scheme under the principle of psychological or historical relativism. The result is that something is left out, namely, the question of the truth or validity of the standard. I do not mean that a philosopher may not apply a standard, but only that his prior and proper task is to formulate and defend the standard which he applies. Even though it should be the case that standards derive their authority from the superior quality of the person who applies them, it would be the peculiar business of the philosopher to explain and defend this view, rather than to exemplify it.

III

Before considering the objections to the view just outlined I should like to point out the extent to which the opponents of this view agree that interest is uniquely related to value, for from this agreement I derive a sense of being on the right track, or of having at least looked in the right direction. In the classification of alternative views in my *General Theory of Value* I defined two views which were plainly akin to my own, namely, the view that value consists in a qualification of the object for interest, and the view that value consists in being the object of a qualified interest, personal, rational, social, or divine. The third alternative was the view that interest plays no part whatever in the meaning of value. But it appears more and more clearly as the discussion proceeds that even upholders of this view attach a peculiar, even though external, importance to interest. Although they refuse to *identify* value with interest, they do for the most part show a marked inclination to one or more of the following positions:

(1) Interest is a necessary condition of anything's possessing or acquiring the quality of value.

(2) Interest is a necessary condition of anything's being known to be valuable.

(3) Only interest, or complexes of which interest is a constituent, are valuable.

(4) Whatever is valuable is *ipso facto* interesting.

If all of these claims can be accounted for, then the very view which professes to be most flatly opposed to the view which I have

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maintained in my *General Theory of Value,* can be cited in its support.[2]

IV

Because of its general bearings, I should like to consider first the type of objection that is excited by the large amount of psychology contained in my *General Theory of Value.* I do not mean the objections felt by psychologists to the effect that my psychology is bad or indifferent psychology, but those felt by logicians to the effect that my psychology is irrelevant.

It is interesting to me to find that while some of my critics who prefer to define value in terms of "satisfaction" object that my view is not psychological and existential enough, others object to the fact that I have brought value within the realm of nature and mind, when I should have respected its peculiar transcendence. Thus Professor Bruno Tapper, speaking for the phenomenologists and neo-Kantians, says of the present writer that he "does not claim that his values are free from the biological and psychological taint."[3] Now while I do not regard value as independent of life and mind, neither do I regard such an alliance as derogating from value's health or reputation. It is customary in some circles to regard biology and psychology as so disreputable as to contaminate the logical "purity" of any doctrine that associates with them. But

[2] Professor A. P. Brogan has objected (in a private letter) that this classification of theories does not provide for his view that value consists in a relation of "betterness." Perhaps not,—but perhaps my fault is somewhat mitigated by the fact that the view in question has shown a healthy tendency to develop. If "better" is a highly abstract relation such as "different," which makes no prescription as to its terms save that there shall be two, then such a view as Professor Brogan's evidently belongs to my first type:—"Value as Irrelevant to Interest." If, on the other hand, "better" is a relation such as "warmer," "brighter," "sadder," or (to waive the use of the comparative) "brother of," "successor of,"—a relation, namely, having a limited domain, then my classification will depend on the domain. If better should happen to be an interest-relation, as the above are thermal, visual, emotional, familial, or temporal relations; if, in other words, it is of the very essence of the relation "better" that it holds only between complexes of which interests are constituents, then I should place it under the type "Value as the Object of Qualified Interest." I should do so because the view would seem to me to consist essentially in identifying value with some comparative or superlative, or specifically qualified, form of interest instead of with interest generically. But I attach no great importance to this question of classification, and the merit of Professor Brogan's view would not in the least be affected in my judgment by the ease or the awkwardness of its fitting in. Nor do I claim to have proved my own view by an exhaustive elimination of every other possibility.

[3] *Inter. Jour. of Ethics,* XL (1930), p. 519.

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the only evil in psychology or biology is in *confusing* them with something else, such as logic; and to avoid this confusion it is much safer to bring them to light than to leave them in the dark.

Now there are two forms which the logical criticism may take. One may argue that value has logical characters which must be studied logically; which must, in other words, be dealt with by applying whatever logical system one holds. Theory of value must, in other words, be conformed to logic. Or, in the second place, one may argue that value *is itself* an independent logical character, which must be provided for by the expansion or revision of one's system of logic. In other words, the so-called "logic of value" means one of two things. It means, on the one hand, that in theory of value (as might be said equally of physics, psychology, or any other branch of inquiry) we must think straight, and fit our argument and conclusion to logical form. Or, on the other hand, it means that theory of value has a peculiar logic of its own, which distinguishes it from theory of every other sort, and which perhaps gives it priority to every other sort of logic. It is my contention that arguments of the first sort are formalistic, and so far as theory of value is concerned, quite barren; whereas arguments of the second sort are interesting and material, but false.

Arguments of the first sort are surprisingly common, and their refutation, though comparatively easy, is nevertheless clarifying. The substance of the criticism is as follows. Value is a concept; and the *meaning* of a concept is not to be confused with the *act* of conceiving it, or with any of the psychological antecedents, conditions, or accompaniments of that act. Value *is* what value *means;* and its nature is to be sought *there,* and not in the subjectivity of him who means it.

Now it is to be noted that, so far as this argument is concerned, we are as ignorant as ever of what value *does* mean. Nor, so far as I can see, has any notion whatever of its meaning as yet been excluded. Indeed, it is still quite open to us to suppose that it means nothing. That is the beauty of the logical method, so far as logic is concerned, and its barrenness so far as anything else is concerned.

But let our logical critic develop his position further. The meaning of a concept, he proceeds, is universal; that is, whatever holds of value in general holds necessarily for all cases of it, actual or possible; and holds for all judges, actual or possible. It is *a priori,* in that my knowledge of it is independent of any knowledge of particular values, and would be true even if there *were* no particular values. Beyond this point the argument will vary with the specific variety of the author's logic. If he is a phenomenological logician he will tell us that value is an essence, an entity neither physical nor mental, which is directly envisaged by an act of in-

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tuition.[4] If he is a logistical logician he will select one or more concepts as indefinables, and use them in a series of definitions of ascending complexity. If he is an idealistic logician, he will construe value as a concrete universal. If he is an instrumentalist logician, his concept will turn out to be plan of action appropriate to a concrete situation.

But it can scarcely have escaped notice that first and last this amounts to no more than the obvious truth that the concept of value is a concept; or that the meaning of value in general is general. It also follows, not less obviously, that whatever be the logical characters of concepts, meanings, or generals, they will hold of value in that aspect, that is, *qua* concept; and that the special complexion of an author's logic will be reflected in his formulation of the logical characters of value.

The same considerations apply to the propositional characters of value. There is a concept of value, and value may therefore be a constituent of propositions that are true or false. Whatever one thinks of propositions, whether he inclines to the subject-predicate or relational form, or to the logic of classes; whether he inclines to the view that relations are internal, or the view that they are external; whether he thinks of truth as connotative or denotative, identifies it with correspondence, coherence or intuitive insight; all of these differences will be reflected in what he says about value. Now any philosopher is at liberty, if he likes, to expound his logic by means of examples drawn from the field of value, provided he is willing to admit that it is logic and not theory of value that he is expounding. He will leave the theory of value precisely where he found it. He has in effect used value only as a symbol, having, so far as these calculations are concerned, no meaning beyond that of "any concept." When one has ascribed to the concept of value the general logical characters which one ascribes to all concepts as such, one is as far as ever from supplying the more determined characteristics which distinguish this concept from other concepts. It is still pertinent to ask,—What *is* the concept? When one conceives of value, *what* does one conceive? And there is no possible answer to this question which has as yet been excluded, not even that so-called psychological answer to which this logical critique was supposed to be peculiarly fatal.

[4] Professor Bruno Tapper tells us that "it is unfortunate that Max Scheler brackets the objectivity of values with that of colors and tones" (*Inter. Jour. of Ethics*, XL, 1930, p. 523). It is unfortunate, because then the characterization of value as "essence" ceases to differentiate it. Essence tends to become a *status* in discourse, the status, namely, of being intuited; or an *aspect*, namely, the "what" as distinguished from the "that"; which status or aspect may be possessed by *anything*.

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There is only one kind of psychologism which has been proved to be vicious, that, namely, which confuses the content of a concept with the mental process of conceiving it. But this does not in the least militate against the supposition that a concept may be a concept *of* the mental. The conceptual form itself does not prescribe what shall be conceived. Take, for example, the concept of fear. If I know what fear in general means, then the concept of it is just as good a concept in every logical sense as any other concept. It is universal, *a priori*, absolute, over-individual, or whatever other attribute one is accustomed, in one's favorite logic, to conjure with. The only reservation is that one must not confuse the essential *what* of fear when I do conceive it, with the accidental *how* of my conceiving it. By the same token, if it so happens that I conceive value as the state of being object of an interest, then logic is as bound to take care of my concept as of any other.

Professor Dewey has used the illustration of a hit, foul, or strike in baseball.[5] These are fairly complicated concepts, and they evidently involve the setting of a game and the participation of human beings engaged more or less in using their minds. But once the concept is conceived, and its meaning fixed, it is logically just as reputable as any other. One must not mix up the psychology of the conceived player and the psychology of the philosopher or the spectator who is doing the conceiving. Nor should one mix up the *physics* of the conceived baseball or diamond with *physics* of the spectator. The concept of a ball can not be hit with any private bat, any more than it can be annexed to the private mental biography of any particular spectator. It has a peculiar logical status of its own. But it *means* mind and body in a peculiar juxtaposition and intercourse.

So of the conception of value in terms of interest. The general concept, once it is conceived, has rights of its own, and it can not be identified with the particular series of mental or physical occurrences which gave it birth. Plato compared conceiving to child-bearing on the ground that the concept like the child is a product of inner gestation. But conceiving is also like child-bearing in that the offspring of thought, like that of the womb, immediately possesses an identity and begins a career of its own. It can never be withdrawn again into the mother-organism. An idea once launched is thereupon and thereafter to all eternity itself. But grant all this, and it remains just as freely true as ever that it may be an idea *of* anything you like, including mind.[6]

[5] This JOURNAL, XX (1923), p. 617.

[6] Professor Nicolai Hartmann has written to me that he accepts my account of value as the complement of his own, in the sense that "*Akt*" is the

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Had I not wished to give the matter some rhetorical emphasis I might have said once for all that the psychologist is just as privileged to employ concepts as anybody else. All he has to do is to distinguish between the psychology of his own psychologizing and the psychology that he is psychologizing about.

V

The second type of logical argument to which I alluded above is free from the fault of formalism. The fault of formalism does not consist in being formal, but in being merely formal where one ought to be material. It is formalistic to substitute for the specific properties of the concept of *value,* the general properties of the *concept* as such. It is not formalistic to argue that the specific property of value is itself a formal property; in other words, that the specific character of value is to be embraced among the characters having that order of generality which we ascribe to logical characters. All that it is proper to insist on in advance is that when one argues that the character of value is a logical character, it shall be clear that there *is* a character about which one is arguing.

Consider, for example, the view that value is a category. He who defends this view should be prepared first to exhibit the concept, as he might exhibit the concept of relation, causation, or substance; and then to prove its categorial status. He may do so by showing that the concept in question belongs to the alphabet of thought,—is one of those terms in terms of which one must think if one is to think at all. Or he may do so by showing that value as specified belongs to the structure of being or object in general, so that any particular being or object must embody it.[7]

complement of "*Inhalt.*" This means, I take it, that he is prepared to admit that the act by which value is apprehended is an act of interest. "Die Apriorität des Wissens um sie ist keine intellektuale, reflexive, sondern eine emotionale, intuitive" (*Ethik,* 1926, p. 109). Even though it were admitted that the act of apprehending value is an interested act, this does not exclude the possibility that *what* is so apprehended may itself be an act. Indeed it seems to be necessary to assume this. Over and above the act of apprehension, whatever kind of act it be, there is, I take it, the act as apprehended. The very act of distinguishing the act of conceiving from what is conceived involves the conceiving of the act as such. It is then entirely possible that when I conceive the act, or conceive the totality of *Akt* and *Inhalt,* I *then* conceive value. So the outcome of the analysis must depend on whether there is an *Inhalt* for value which does not mean *Akt,* or embrace *Akt* as a part of its meaning.

[7] Or value may be construed as a category in the sense of being a fundamental claim,—a hopeful expectation. Thus Professor L. J. Leonard speaks of value as a *justificandum,* a character which applies to existence not descriptively, but ideally. This view, also, it seems to me, throws no light on the more specific question of what value means. The question of the legitimacy of believing that existence conforms to our aspirations is one question, the

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Judging by the history of philosophy neither procedure would necessarily exclude the possibility that value means interest. It is true that one starts with the notion that interest belongs to some things and not to others,—that it belongs, for example, to the organic and not to the inorganic world. But this sort of difficulty has never troubled idealists, who in order to construe mind as a category have promptly doubled it, in order to provide both for the mind that inheres in all things and the mind that is peculiar to minds. If this sort of equivocation is to be avoided, then a categorial value must not be identified with properties like interest residing in a part of nature or history to the exclusion of the rest, but with some more elementary and pervasive character. Hence, except among idealists this categorial view finds its chief support in the notion that there is a value-surd, a value-prime, a simple and irreducible character. The discussion of this alleged addition to the family of ultimate entities will be resumed later. Suffice it to say that value has now become *so* simple that the great difficulty is to find it. Even its parents and self-appointed champions seem to be constantly mislaying it.

Another variant of this second logical line of attack, according to which value possesses a peculiar logical status of its own, is the view that there is another act of apprehension which is as fundamental as the acts of thought and perception,—as fundamental, if not more so; and which has its own correlative realm of objects. Just as there is a theoretical logic governing thought and perception and their objects, so there is an emotional or practical logic which governs one or both of *these* modes of apprehension and *their* objects. Perhaps it is a mistake to speak of the second realm in terms of apprehension and objects. The point is that the ordinary kind of logic is held to be only one kind of logic, appropriate only to one kind of spiritual act, and having canons of legitimacy which are limited to itself. Instead of subsuming the discerning of value under this act, and making it answerable to the canons of this act, we are invited to recognize in the case of value an independent act with its own independent canons. Values will then not be answerable to the conditions of ordinary objectivity. They will not occur in nature and history, these being the realms of thought and perception. Thought and perception deal with facts and necessities; the new act deals with oughts and validities. Views of this sort are unlikely to remain dualistic, but almost invariably pass

question as to what value means is another. Either value is value because we aspire to it; or value is something distinct from aspiration, to which, it so happens, we aspire. In the latter case it is quite in order to ask *what it is* that we aspire to. ("Value and Existence," *Proceedings of the Sixth International Congress of Philosophy*, 1927, pp. 301 ff.)

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over into the more radical view that facts and necessities are degraded or disguised forms of oughts and validities, so that the ultimate metaphysics is in terms of the ideal rather than of the real.

The substitution of "validity" for existence or subsistence I do not find illuminating. The irreducibility of value to the categories of existence seems to rest on the fact that: (1) *a* can be valuable without existing; or, (2), *a* can be valuable without its value's existing; or, (3), valuableness can be valuableness without existing. But I do not find anything peculiar about any of these alternatives. They are possibilities that must somehow be provided for in subject-matter other than value. Thus, (1) *a* can be believed without existing; (2) *a* can be believed without the belief's existing, as when *a* is the object of a purely imaginary belief; (3) belief can be belief without existing, that is, belief may be a null class or a nature that is not exemplified. The supposed difficulty seems to arise from the supposition that if anything is asserted, existence is asserted. But the rejection of this naïve supposition is the first step in logic.

As to the term "validity" I can not see that it introduces any new meaning which is helpful in this connection. The German verb *gelten,* like the English verb "to hold," has the merit of avoiding the term "is," but so have all verbs except the verb "to be." The specific meanings of "validity" and *"Geltung"* seem to be: (1) *value,* in which case the expression "values are valid" is questionable or redundant; (2) *logical correctness or proof,* which is applicable to judgments of being as well as to judgments of value, and is provided for in all types of logic and epistemology; (3) *compliance with legal forms,* which is clearly too restricted in its application to suit the purpose of the present theory.

Professor Hartmann also excludes value from the realm of being, and hence from the scope of the logic of being. He points out that while *a*'s value may be something that it is not, *a* is not in this case indifferent to what it is not. This peculiar relevance of non-being to being in the case of value, is expressed by saying that *a* is not what it *ought to be.*[8] When the analysis takes this form the issue turns on "ought," and no conception of "ought" is excluded by the analysis up to this point. An interpretation of "ought" in terms of real will may serve the purpose as well as any other; though in this case it must, of course, be contended that the statement of the situation in terms of the two terms, the thing, and *what* it ought to be, is incomplete. There would be an implied reference either to the thing's own will; or to the will of some other being, actual or hypothetical, having an interest in the thing.

But Professor Hartmann excludes this possibility by insisting

[8] *Ethik,* pp. 144 ff

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that "ought" is itself an irreducible concept.[9] He does not, as do Professor John Laird and Professor M. E. Clarke, for example, regard "ought-to-be" as the equivalent of value. Value is *what* ought to be, and it is a further character of it that it ought, or "tends," to be real. Nor does he identify this obligation or tendency with the moral subject's obligation to do something about it. *Seinsollen* and *Tunsollen* are quite distinct, the latter affording the real condition by which the former may be executed. *Seinsollen* remains as the mode of being (*Seinsmodus*) characteristic of values. We should not say of a value that it *is*, but that it *ought to be*.

The case for such a doctrine as this seems to me to rest upon the *finding* of value and ought, in some manner that sets them apart from being and that has a logic of its own. This manner of finding Hartmann provides by attributing cognition to feeling, emotion, and will. These states of the subject reveal a peculiar content, which is *a priori* independently and in its own peculiar way.[10]

Whether this view is tenable or not, depends on the analysis of the relations of cognition and interest. It seems clear that the proposed view can have no force unless it can provide a substitute for ordinary knowledge in the field of value. If values are either unknown, or known by thought and perception, then the logic of thought and perception applies to them; and they take their place in the realm of what is judged to be, or judged to be so and so. Those who insist that values have a logic of their own must insist that it has a cognition of its own,—and must therefore impute a cognitive office to those parts of our nature, such as will and feeling, which are ordinarily contrasted to the cognitive part. Thus the view in question must depend on some such thesis as that values make themselves known, or reveal themselves, by their power to excite will and feeling. They make themselves known by *moving*. Duty makes itself known by speaking imperatively to my awe-struck will, beauty makes itself known by appealing seductively to my fascinated feeling. This is an interesting question in itself quite apart from its bearing on the hegemony of logic. There is a widespread belief that if a thing alleged to be valuable is exhibited to a subject, and leaves him cold, he can not have found it valuable. This would seem to imply that in the case of value the finding of the evidence must itself take the form of an affecto-motor response. This topic I hope to resume in a later article.

HARVARD UNIVERSITY. RALPH BARTON PERRY.

[9] *Ethik*, pp. 154 ff.
[10] *Ethik*, pp. 104 ff.

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DISINTERESTEDNESS AS IDEAL AND AS TECHNIQUE

CENTURY after century those philosophers clearsighted and ruthless enough to realize the inevitable dichotomy between facts and values, the inevitable defeat of the ideal by the real, have been forced to rediscover the one ethical attitude which seems, for a philosopher, to stand the test of such knowledge—the ethics of disinterestedness. Plato and Epicurus and Spinoza and Schopenhauer and Santayana have each in their individual ways and with their own varying emphases re-asserted that

> "Far better than anything good
> Is mastery in the using,
> And sweeter than all that is sweet
> The art to lay it aside."

And whether you term it hypostatization or the direct intuition of an ultimate value, in every case this esthetic attitude, which may have been adopted as the least of many evils or as a necessary shield against the slings and arrows of outrageous fortune, this simple device for the attainment of some measure of contentment, is metamorphosized so strangely that the buckler becomes more important than the battle and the successful maintenance of the attitude is more to be desired than any happiness one could possibly obtain without it.

Disinterestedness is no longer a means, but an end—is no longer an end, but is the end of all truly ethical conduct. Even for Santayana the value of this ethical ideal is somehow incommensurable with the values of other human ends whose worth depends on men's desires.

And while this *summum bonum* is restated in a slightly different form by each discoverer, essentially it varies but little through all its reincarnations. Essentially Plato's perfect lover and Epicurus's wise man and Spinoza's free man and Schopenhauer's pure intellect and Santayana's philosopher share precisely the same attitude—an attitude we have chosen to characterize as disinterested—an attitude which is, actually, made up of two elements, combined in varying proportions.

The first—ostensibly a less significant component of this attitude than the second—is the passion for intellectual and esthetic appreciation, the unquenchable ardent thirst for understanding, the keen joy in a realization of relations and essences.

This "intellectual love of God" or, less ambiguously, this passionate intellectual interest, may be evidenced in as different ways as are exampled by the grammarian who "gave us the doctrine of the *enclitic de*, dead from the waist down," by the biologist who is

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overpowered with curiosity as to the habits of the earthworm, and by the esthete who seeks only lines, colors, dramatic contrasts, sounds, etc., in the world about him. All of these are alike in seeking no justification for their activities outside of the activities themselves, and while this esthetic attitude alone is not sufficient as a description of "disinterestedness" it is the sole basis for that second element, indifference, which the wise man must labor to achieve. For it is only when we have universalized this intellectual interest to the point where why we suffer is of more importance than that we suffer; it is only when we have heightened this esthetic interest to the incredible pitch where it makes us appreciate the color of the flames by which we are surrounded, that we may fairly be said to have achieved "la sainte indifference."

And it is, of course, just this sort of indifference which is the second element—and the most obviously characteristic—in the attitude of true disinterestedness. Such indifference is not based upon a lack of interest—it has nothing in it of unresponsive apathy. It is only when we have learned how to look with love upon the gifts life puts into our open hands without closing those hands in a futile undignified attempt to clutch them as they slip away, it is only when we can view with unregretful appreciation the loss of those homes to which we had no natural right, those friends who were not destined to be ours, it is only then that we may be said to have achieved the truly philosophical attitude—the attitude of disinterestedness.

This traditional disinterestedness, as interpreted by Santayana, is, of course, Epicurean, not Stoical. That is, it is based on a realization that the universe is not governed in accordance with our wishes rather than on the decision to wish in accordance with its government; on the realization that good and evil are applicable to things only in their relations to human desires rather than on the belief that a transcendental goodness is to be found in the laws governing things; and on the realization that this attitude is its own justification rather than on the faith that it is justified by the rightness of those forces to which it voluntarily submits.

Its distinguishing characteristics are an unmoved recognition of somewhat unpleasant facts, the greater breadth of the intellectual horizon, now no longer bounded by hopes and fears and practical interests, and a proud independence of any end save its own completion and perfection.

So when we find a pupil of Santayana's proclaiming that this difficult, rare, and most desirable attitude has, in our modern world, suddenly become practicable for the majority, we may be incredulous, but we must be interested. For, as Walter Lippmann himself

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shows, never were men more in need of some such substitute for the easy optimism of the religion and popular idealism to which they can no longer cling. And in "high religion" Lippmann offers just such a panacea as this Santayanan disinterestedness, to the average man as well as to philosophers.

This high religion is made generally available by the growth of our machine industries and of the consequent big business era. For the tasks of society are now so complicated and numerous, the business each man must engage in is, in its entirety, so much too vast and intricate for any one individual to grasp, that the modern man is forced to concentrate on the particular job he happens to hold, to focus his interest on its immediate demands, and to ignore its distant ramifications, its final relation to other similar pieces of work done by other equally ignorant men, and its ultimate purpose.

We begin to suspect that all is not as it should be when we notice that here disinterestedness connotes a tremendous contraction of man's intellectual horizon, a pious faith that our finished piece of work will, somehow, fit in with other such pieces of work, and a practical justification in the increased efficiency such concentration will entail. Furthermore, when we examine this disinterestedness we find that its fortunate possessor is not really disinterested at all. For though he may, while doing his work, temporarily forget all else, he is not really indifferent as to its immediate issue nor is he ordinarily doing it for itself without a definitely understood, if unexpressed, desire for the wage it earns.

There is here a triple confusion. First, Mr. Lippmann seems implicitly to assume the major premise the Stoics made explicit, "All is ordered by a superlatively good providence and in playing the parts it assigns us we are doing our utmost to further its design"; second, he seems to ignore the distinction between seeking disinterestedness as a way of life because it is a good-in-itself and seeking it in a certain very limited field because it promotes efficiency in that field; and, third, he seems to mistake uninterestedness for disinterestedness. He says "He (the ordinary executive in a great corporation) is so little the monarch of all he surveys, his experience is so continually with stubborn and irreducible facts, he is so much compelled to adjust his own preferences to the preferences of others, that he becomes a relatively disinterested person" (p. 257, *Preface to Morals*). Now this is not a description of disinterestedness. It is not a description of anything but the resignation and surrender of utter weariness, a surrender colored by that resentment which any access of energy would kindle into futile rebellion. And unless his weariness is so complete that he can no longer formulate a wish, such a man will wish for the same things,

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albeit he no longer expects, or even hopes for, the fulfillment of his desires.

Clearly such oblivious concentration as this state might lead to is no ideal and would never be sought as an end in itself. It may serve its purpose for the meliorist as a means of more efficient application and its mechanical absorption may afford the pessimist a more effective drug with which to deaden the gnawing pain of disillusionment. But it must not be confused with the objective attitude of the philosopher who notes and weighs the joys and sorrows of his universe, finding in its varied shapes and meanings sufficient beauty and interest to fill full his life.

In order to make at all meaningful Lippmann's idea that the attitude fostered by the size and complexity of modern business is one of disinterestedness it would be necessary for us to re-define that term, restricting its significance to an intellectual recognition of facts and omitting all mention of the corresponding emotional indifference.

This step Mr. Lippmann might not be averse to making explicit. For the moral indifference upon which Epicurean disinterestedness has always been so insistent is as foreign to Stoicism as the emphasis Epicureanism places on keen intellectual and esthetic interest. But it seems to me that if we permit him to re-define disinterestedness as merely an intellectual recognition of facts we not only omit an element traditionally included in its definition, but we are also forced to exclude the connotations which are essentially characteristic of disinterestedness as an ideal of conduct or way of life.

For while the intellectual objectivity and curiosity are the differentia of our definition—are needed to distinguish disinterestedness from apathy or the painful resignation of impotence—emotional indifference or undesirousness is, none the less, necessary as its genus. If to be disinterested means anything at all it means an intellectual objectivity in which the subject not only sees things as they are, undistorted by any personal bias, but also loses consciousness of itself, except as perceiver, and focuses its interest exclusively on the object.

If he is, by practical exigencies, forced to take an active part in affairs it is with the same attitude of somewhat amused contemplation that he watches his own actions, nor is their unforeseen end capable of disappointing him any more than the unforeseen conclusion of an interesting tragedy will trouble the spectator with wishes that it were otherwise.

Now if we subtract the element of undesirousness or indifference from our disinterested man, leaving him only the ability to see the facts of a situation, it seems to me we have so entirely changed his

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attitude as to make our use of the same word farcical. For now his disinterestedness exists only in so far as, in a certain specialized field, he refuses to allow his own interests to distort his judgment and has chosen to know the truth rather than to believe the state of affairs is as he would wish it to be.

Such knowledge is, of course, an excellent thing. But if it is intended merely as a means to an end it no more partakes of disinterestedness than a dictator's knowledge of what deprivations people will tolerate and what they will not tolerate, than a hunter's knowledge of what hours and places his prey chooses to sleep, or than a banker's knowledge of which dishonesties his depositors will and which they will not suspect. Naturally the dictator will rule longer, the hunter will kill more, and the banker will prosper better if they observe their victim's behavior instead of assuming that their victims will act as would be most convenient for present purposes.

But clear sighted as such planning may be, and totally suppressed as all signs of emotion may be while the plans are in execution, and greatly increased as the planner's efficiency may be by his open-eyed coolness, there seems to exist no real resemblance between his state and that of the undesirous "lover of wisdom." Nor would his disappointment at the failure of his plan be any less severe than it would have been had he failed to realize the facts in the original situation. If those facts included a great probability of failure he may be less surprised, but he will be none the less dissatisfied.

Of course I do not mean to imply by my choice of examples that there is any essential connection between this "intellectual disinterestedness" and unethical or anti-social conduct. It could as easily be used to render effective a charity campaign as the sale of a patent medicine. But in neither case would it at all resemble the classical ideal, nor would it ever form a more efficient tool for philanthropic or rational than for selfish and irrational activity. It is, when dissociated from undesirousness, merely an excellent means for accomplishing one's ends, whatever they may be, and it helps no whit in deciding those ends or in indicating a "way of life." As a technique, while not precisely new, it is important enough to be warmly recommended, but why one should attach to it a label so misleadingly fraught with other connotations and deeper significance is not clear.

This obvious shift in meaning may, however, be occasioned by Lippmann's belief that the philosopher's need of such an ethics as disinterestedness provides is now the need of an ever-increasing number, together with his apparent despair of man's ability to attain such a state.

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The basis for this despair seems sound enough. Certainly whether or not we agree with Lippmann that the tremendous organization of competitive business not only permanently moulds our civilization, but also forms its system of values, we can hardly doubt that it is absolutely incompatible with the high degree of emotional indifference or undesirousness which must accompany intellectual objectivity in disinterestedness used in its traditional sense.

For if by understanding we mean a fully imaginative realization of our competitors' desires and needs, and a sense of proportion strong enough to set these fairly beside our own, it would be impossible for any man so equipped to enter, far less to succeed in, the business world which seems to Lippmann of such paramount importance in deciding one's attitude. In too many of the pieces of work on which Lippmann would have him concentrate he would see so much pain implied by their achievement that he himself could hardly wish it. No willing, whole-hearted, or successful participation in this phase of modern life would, normally, be possible for the truly disinterested man.

Obviously, therefore, a wide-spread acceptance of this ideal could not conceivably co-exist with things as they are. And since, as a stoic apologetic, Lippmann's philosophy is (albeit unconsciously) concerned with justifying things as they are, he does not present the attitude of disinterestedness as an unattainable ideal, but discards it, offering instead a "high religion" that combines the use of disinterestedness as a technique with a stoic resignation to playing as well as possible the parts accidentally assigned us. And, finally, he tempers this stoic pessimism with a faint incurious hope that if, by the aid of our new technique, we play our parts very well indeed, we may find there was a destiny which shaped our ends, rough hew them as we would.

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BOOK REVIEWS

Enchiridion Ethicum. HENRY MORE. The English Translation of 1690. Reproduced from the First Edition. New York: The Facsimile Text Society. 1930.

A Sermon, Preached before the House of Commons, March 31, 1647. RALPH CUDWORTH. Reproduced from the Original Edition. New York: The Facsimile Text Society. 1930.

Biathanatos. JOHN DONNE. Reproduced from the First Edition. With a Bibliographical Note by J William Hebel. New York: The Facsimile Text Society. 1930.

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Conway Letters, The Correspondence of Anne, Viscountess Conway, Henry More, and their Friends, 1642–1684. Collected from Manuscript Sources and Edited with a Biographical Account by MARJORIE HOPE NICHOLSON. New Haven: Yale University Press. 1930.

To the lover of beautiful books and to the lover of the seventeenth century, alike, these facsimile texts will bring joy and satisfaction, the pleasure found in something at once well worth the doing and well done. The reproduction of the old texts, long since out of print, preserves for us both beauty of form and continuity of thought far more effectively than any reprint in modern type could do. One has somewhat the sense of reading the books of More and Donne, and Cudworth's *Sermon to the House of Commons,* as they came out, a certain feeling of identification with those readers of an earlier day, for whom these books were fresh and untried, rather than historically interesting. The presswork is beautifully done and the bindings in soft blue and tan seem eminently suited to these expressions of calm thought searching after the realities of truth and goodness in an age of turbulent and chaotic activity.

In More's *Ethics,* or *Account of Virtue,* as in any man's sincere thought on questions of morality, we find, first of all, the expression of the man, himself, the eager enquiring mind, which yet feels the need for some simple and secure standards, the desire for orderly arrangement and system occasionally overborne by some particular interest, the frequent reference to friendship as a sort of touchstone for virtue, the vivid sense of a divine communion possible to man, and at the same time a reluctant recognition of man's inadequacy and failure. The doctrine of the *Enchiridion Ethicum* is for the most part from Descartes and the Stoics with frequent reference to Aristotle. It is an attempt to combine a psychological analysis of the emotions with a logical deduction of the virtues, and a final reliance on the goodness of God and the belief in immortality as solution and compensation for the evils of life.

Cudworth's *Sermon,* brief as it is in comparison with the enormous length of his True Intellectual System of the Universe, has the same characteristics of thought and diction as the longer work. Metaphor and simile, quotation and allusion, fill its pages. But underlying all ornamentation is the simple faith of a thoughtful man, the insistence that Christian confidence must be rooted in conformity with the will of God, the courageous demand for toleration in an intolerant age. Cudworth labors to convince the House of Commons of 1647 that "opposition to God consists not in specu-

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lative dissent but in pride and self-will." In characteristic phrase, God is for Cudworth the "Father of Lights," and the Christian life is "God's own self communicated to us, his own Sonne born in our hearts." Cudworth apparently cherished few illusions about his audience. "If any of you say you know Christ and have an interest in Him, and yet (as I fear, too many do) still nourish Ambition, Pride, Vainglory within your brests; harbour Malice, Revengfulnesse, & cruell Hatred to your neighbours in your hearts —deceive not your selves, you have neither seen Christ nor known him." He urges his hearers to "express Affection in these jarring times," "to keep the fire of Zeal within the Chimney, in its proper place," to follow the "law of Love into perfect Liberty."

The *Biathanatos* of John Donne, which according to the bibliographical note was probably published in 1646, instead of in 1644 as has usually been asserted, is a long, elaborate, and involved argument against the extreme and absolute condemnation of suicide. Donne is not in any sense advocating self-destruction, but is setting out to show "that Self-homicide is not so Naturally a Sinne that it may never be otherwise." Donne's prose is almost fantastic in its elaborate use of quotation and reference, but through the maze of words one can discern an active and vigorous mind. One of the more interesting parts of his argument is the discussion of the Law of Nature as it was understood in the seventeenth century, together with such modification of the understanding of it as seemed to the writer to be necessary in the interests of consistency and clearness. There is a complex discussion of the analogy between willful martyrdom and suicide, with reference to Church Fathers in plenty, an accusation of inconsistency in those who completely condemn suicide and yet deplore the ordinary man's love of life and horror of death, and a final conclusion that "that is certainly true of this which Cassianus saith of a ly, that it hath the nature of Ellebore, wholesome in desperate diseases, but otherwise poyson."

These three small volumes assuredly form a real contribution to the understanding of the philosophy of the seventeenth century and an interesting illustration of the coöperation between science and letters. The reproduction of texts by photographic process gives exact facsimiles of the original copies and allows greater rapidity of publishing than is otherwise possible. The Facsimile Text Society according to its prospectus is planning such reproduction of many books of "important texts that are unique or exist in very few copies," "of early editions of some modern books," and of some needed manuscripts.

The *Conway Letters* form a perfect accompaniment to the texts

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of More and Cudworth. Anne, Lady Conway, the "dearest dear" of her husband, the 3rd Viscount of Conway, "that pious and loyal politician," and of her brother, the brilliant John Finch, was also the "honored lady" of Henry More and Jeremy Taylor, of scientists, churchmen, and men of the world. In spite of the mysterious "fitts" of intense pain she moves through these pages with dignity and grace, a true lady of the seventeenth century. We see her first as an eager girl, afire with interest in the new thought of her day; then as mistress of great houses, Ragley in England, and Portmore in Ireland, the hostess of unfailing charm who gathered around her in hall and garden men and women of many types and interests; then as the mature woman, weakened by pain, saddened by grief, unable quite to follow the paths of serene resignation pointed out to her by her erstwhile tutor, but still loving and thoughtful, still interested in all the happenings in the large circle of friends who made the beauty of her life. The married life of Lord and Lady Conway, their family and friends, the deep friendship of Lady Conway and Henry More, the Platonist of Cambridge, these form the main movement of this picture of seventeenth-century life. But around these, interwoven with them, are many other figures and stories: Jeremy Taylor and his experiences in Ireland, the lifelong friendship of John Finch and Thomas Haines, William Harvey, who discovered the circulation of the blood but could not cure Lady Conway's headaches, the beautiful Elizabeth Cecil, Carew Raleigh, Sir Walter's son, Francis van Helmont, chemist, alchemist, and Scholar Gipsy, the romantic Madge, Marchioness of Newcastle, Sir Kenelm Digby, Ralph Cudworth, Valentine Greatrakes, the Irish "stroker," and many more. They come and go, Quakers, charlatans, doctors, spiritists, and scientists, each playing his part on the stage and contributing to the picture of the whole.

There is continual reference to the books of the day, Descartes' *Principles* and his *Letters,* the second volume of which More had such great difficulty in having sent to Lady Conway in Ireland. Copernicus, his *System of the World,* the *Theologica Germanica,* George Rust's little book on Origen, anonymously published; Jeremy Taylor's *Christian Consolations,* written for Lady Conway; More's own books, both in process of writing and as they came out, many of them largely written in the quiet arbors of Ragley during the long summer vacations from Cambridge. The literary and philosophical discussion lies against a background of friendly gossip, of "lamprey-pies" sent and received, of children and small dogs, of love affairs, marriage, birth, and death. And this again like a shifting picture against the dark background of Civil War, the Commonwealth, and the Restoration.

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The book is delightfully printed, and the occasional illustrations from old portraits and prints add greatly to its charm. The work of collecting, transcribing, and editing the letters has been done with a scholarly exactness which is never obtrusive; the sections of explanation and interpretation which precede each group of letters are written with the ease of long familiarity and a form of word and structure that supplies what is needed for the understanding of the letters with no sense of interruption of their continuity. The *Conway Letters* are immensely useful, even indispensable for an understanding of the period, but apart from that I only wish I could convey in this notice something of the enchanting delight that they are in the reading. They carry one back more vividly and realistically than history or novel to the England of Cromwell and Charles II, and at the same time have a certain timeless quality as the expression without self-consciousness or exploitation of the thoughts and feelings and everyday happenings of a group of pleasant people.

FLORA I. MACKINNON.

WELLESLEY COLLEGE.

Foundations of Geometry and Induction. JEAN NICOD. Prefaces by BERTRAND RUSSELL and ANDRÉ LALANDE. New York: Harcourt Brace & Co. 1930. (International Library of Psychology, Philosophy and Scientific Method.) London: Kegan Paul, Trench, Trubner & Co., Ltd. 286 pp.

This book is a translation by P. P. Wiener, of Nicod's *La Géometrie dans le Monde Sensible,* and *Le Problème Logique de l'Induction,* which were to have been presented by him as theses for the doctorate in letters at the University of Paris. But Nicod, who was born in 1893, died in 1924, shortly before the time that had been fixed for the presentation of the theses. Both works amply testify to the brilliancy and originality of his mind, and to the great loss which his death means to philosophy.

In the essay on *Geometry in the Sensible World,* Nicod first points out that the familiar geometry, which deals with points, straight lines, and distances in the sense in which these terms are commonly understood, is not pure geometry, but is only one of the possible systems of meanings that satisfy the axioms of pure geometry. Pure geometry, on the other hand, is nothing else than a logical deductive system, or chain of formal reasoning, not different in essence from reasoning about anything else.

In pure geometry the terms "point," "straight line," "distance," do not specifically denote the entities commonly so designated. They are, on the contrary, terms having as wholly indeter-

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minate a denotation as would mere symbols such as *X*, *Y*, and *Z*. In other words, they are variables; and the geometrical axioms and theorems stated in terms of them are therefore not propositions, but propositional functions, which have among themselves certain relations of implication but which, precisely because their denotation remains completely ambiguous, are not by themselves either true or false. They become true, or false, only when some specific meaning is assigned to each of the terms "point," "straight line," "distance." A meaning that would make them true can be specified, for instance, in terms of the entities of arithmetic, "points" being defined to mean "ordered triads of real numbers taken with their signs"; and "straight lines" and the rest, in corresponding manner. Thereby, something that may by analogy be called an arithmetical "space" is characterized. It is a very different sort of thing from the space in which we move, but it has the same formal properties.

These considerations, however, only introduce the reader to Nicod's real task, which is to discover whether the sensible world,—the world of *sense-data*,—does not perhaps as well as that of arithmetic furnish us with various systems of terms and relations satisfying the axioms and theorems of pure geometry. The first step in the inquiry is to analyze nature as perceived, into the elementary terms and relations which it presents apart from any system or theory. The elementary terms are *sense-data*, and the relations which Nicod's analysis reveals are such as interiority, penetration, exteriority, continuity, temporal inclusion, temporal overlapping, global, qualitative, and local resemblances, etc.

In the third part of the essay, Nicod discusses geometries of sensation based upon various relations. In terms of the data of the single sense of hearing, for instance, and of the relations of succession and global resemblance, it is possible to define "lines" and "surfaces." If to the data of some one external sense are added kinæsthetic data, it becomes possible to define in terms of such data and of the same relations a complete geometrical "space,"—indeed, a multitude of such "spaces." Other schemes of geometry are based on relations of position regarded as original; and upon simultaneities and local and qualitative similarities, with data furnished by one external sense admitting of displacement of its data in its field. Nicod does not claim to give a general solution of the problem of the application of geometry to the world of sense-data, but only certain solutions in particular sorts of cases. These, however, are useful towards the formulation of more complete solutions, and even the approach to that goal that Nicod makes throws much light on the nature of the order-relations of our sense data.

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In the essay on *The Logical Problem of Induction,* Nicod contends that induction by elimination, useful as it is when a considerable body of knowledge has already been accumulated, is secondary. Primary inductions are those which do not rest on previous inductions. Elimination, were it the sole basis of primary inductions, could not confer upon them a degree of probability approaching certainty, but only a mediocre probality, no matter how careful or prolonged was the investigation. Nicod argues that Induction by simple enumeration can do better, and does not theoretically depend, as usually assumed, upon elimination, but only upon confirmation. His attack upon the elimination theory of Induction, and his statement and defense of the theory of confirmative enumeration, are highly ingenious and original, but too involved and lengthy to summarize here. They must undoubtedly be regarded, together with J. M. Keynes' *Treatise on Probability,* as contributions of the first importance to the development of the theory of Induction. Nicod's view, however, seems open to attack at several points. The notion of determinism, for instance, which he claims to be involved in all eliminative induction, and which appears throughout his criticism of it, receives only a most superficial analysis,—and the suspicion occurs at many places that the use he makes of the notion is incompatible with the meaning of it that a searching analysis would reveal. Again, the principal postulate upon which he rests the validity of merely enumerative induction,—viz., that the initial probability of the law to be rendered (more) probable by enumerative induction was not null,—is rather puzzling. For of what nature would then be the ground of that initial probability? Nicod, it is to be noted, does not require that even a single instance of the given law should be known. And it is a question whether mere ignorance of any instance incompatible with the given law, confers any probability whatever upon the law. If taken strictly by itself, such ignorance is equally consonant with the supposition of the impossibility and with that of the possibility of the given law. Again, Nicod's argument to show that even if a new instance of a law were strictly identical with a previous one, it would increase the probability of the law, seems open to question,—both on account of the use he makes in it of the notion of determinism, and otherwise.

Of this translation of Nicod's two essays, it can be said that it is better than nothing, but not that it is trustworthy. It abounds in inaccuracies and misunderstandings, which are sometimes of minor importance, but which sometimes gravely pervert the meaning of the original. On page 56, for instance, the translation reads "when a term or content x is part of the term or content X, it is impossible to conceive something about X *without conceiving the same thing of*

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x,"—a statement which is glaringly false. But what the original means is: " . . . *without thereby conceiving something of x*" (sans penser par là même quelque chose de *x*.") Again, the French "interference" (derived from *ferre*—to bear) is translated by the English "interference" (derived from *ferire*, to strike) instead of by "overlapping" (p. 67). Where the original means: "we take only the data of an external sense," the translation reads "we take the data of only one external sense" (p. 96); where the original means: "But this sense must permit a displacement of its data in its field," the translation reads: "But this time we have a disposition of particulars in a field" (p. 184); where the original means: "the conditions that it assumes," the translation reads "the conditions that it agrees with" (p. 204); where the original means "on its true ground," the translation reads "on its pretended ground" (p. 205), etc. Such cases of perversion of the sense of the original could be multiplied *ad libitum*. Nicod's own text should be consulted at least at all crucial points, and whenever a passage appears obscure, if an accurate understanding of his views is aimed at.

C. J. Ducasse.

Brown University.

Die Maschinentheorie des Lebens. Julius Schultz. Leipzig: Felix Meiner. 1929. viii + 194 pp.

The concept of special biotic elements has played an important rôle in biological theory. Darwin's gemmules, Spencer's physiological units, Weismann's determinants and Mendel's unit characters have been among the more influential conceptions. Schultz assumes as the basis of his theory elements of this sort called *Biogene* (a term adopted from Verworn), and defined as the ultimate units of organic matter, intermediate in nature between the largest chemical molecule and the smallest living being. Coöperating with the biogenes in the determination of living forms are the body fluids, the medium of the biogenes, and environmental stimuli. But the primary factors are the assumed biotic elements.

This concept is elaborated with reference to the various categories of vital phenomena. The result is not a mechanistic theory of life in the older sense, for, as Schultz admits, Driesch conclusively demonstrated that no living thing is a machine. Rather he claims to have shown that life necessarily results from the working together of sub-living machines (the biogenes), together with body fluids and environmental influences. To account for adaptations, for types of organization, such as the biogenes themselves could not negotiate, Schultz posits a universal machine, the cosmos, in which the distribution of masses is carefully arranged throughout. A

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preëstablished harmony between biogenes and environmental conditions is thereby effected. Darwin explained only the mechanistic means whereby adaptations are produced.

The author excludes, on methodological grounds, any consideration of possible psychic influences on the development and activity of the organism, holding that the investigation of any such factors is beyond the range of natural science. He accordingly rejects anything savoring of vitalistic or interactionist conceptions. A parallelistic conception of the psychophysical is a necessary implication of a mechanistic theory. Consciousness merely reflects physical realities. An *Allseele* thus represents the cosmos, the universal machine; and, in addition, its *Gesetzlichkeit* is manifested in natural laws, its richness in nature's living forms. We are not told just how this might be so.

Those with a taste for theory of this kind will find this volume just the sort of book they like. Moreover, its critical survey of a voluminous literature bearing on the topics discussed should be of interest to all students of biological theory. To the reviewer, however, the study is also a striking example of the fallacy and futility to which a theory is condemned at the outset when it is to be constructed as was this one. Excluding for methodological reasons any consideration of psychic phenomena, it purports to reach conclusions applying to the whole of life, psychic aspects included. From methodological premises the author arrives at ontological conclusions—a common feat among scientific specialists and others who take scientific assumptions too seriously. The outcome in this case is a desperate resort, for explanatory purposes, to a mechanical, external teleology instead of non-physical factors coming within the range of everyday experience.

SEBA ELDRIDGE.

UNIVERSITY OF KANSAS.

Jean Jacques Rousseau and His Philosophy. HARALD HÖFFDING. Translated from the second Danish edition by William Richards and Leo E. Saidla, with a new preface by the author. New Haven: Yale University Press. 1930. xviii + 165 pp.

At last there is available in English this excellent monograph on Rousseau, first published and widely translated (but not in English) in 1896, and revised in 1912. While it neither adds to our factual knowledge of Jean Jacques, nor indeed keeps abreast of the new material uncovered during the last two decades, it does present a clear, concise, and sympathetic interpretation of the man who has recently been given the part of personal devil in the Neo-Humanist mythology. Professor Höffding devotes the first two-thirds of his

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book to a compact biographical account that is refreshingly unfictionized. The remainder gives a brief summary of "Rousseau's Philosophy," which he regards as primarily "symptomatic" and "seminal." The distinguished historian, as might be expected, sees his subject in full perspective against the background of modern European philosophy. The translators have done their work well.

Rousseau, the author tells us, was the solitary pioneer who challenged a whole civilization on a single central issue: "its weakening of life through the dividing of forces." The division of labor meant one-sidedness, and the latter seemed to him an unmitigated misfortune. It might produce wealth, but Rousseau was interested in something which he considered more important. The main thing was to live a unified and harmonious "natural" life. In feeling and its "expansions," Rousseau thought he had found the remedy for what has since become industrialism, a way of life that would restore the whole man. In his own case the "expansions" did not, unfortunately, lend themselves to "natural" unification. Being preternaturally frank, Rousseau supplied his opponents with unlimited quantities of free ammunition by exhibiting to the full the paradoxes to which a wretched practicing of his ideas might lead. But criticisms of the personal life of a prophet hardly cancel out the truths which may be contained in his predictions. Rousseau shouted a warning to the easy critics as well as to the easy accepters of a precariously balanced civilization, and set them to thinking about fundamentals. To blame him for the very extravagances of industrialism and democracy against which he warned the men of his time is to manifest a pitiful ignorance of his writings.

Rousseau was a great liberator of mankind, not because he threw off restraints, but because he made men aware of the subterranean surges that must be taken account of in constructing a sound rather than a jerry-built civilization. His constant appeal was to the spirit of things as against the letter; and yet many of the misunderstandings about him flow from literal interpretations of his political and educational projects on the part of the blinder of his followers. "He was no fantast," concludes Professor Höffding (in his preface dated July, 1930) ". . . the great problem—which Rousseau raised with more sense than the critics have usually recognized, the problem which in its several forms took up his whole soul . . . he did not solve. It raises itself anew, but in varying forms, for every new generation, and it must be treated according to the constantly changing conditions of modern times."

HAROLD A. LARRABEE.

UNION COLLEGE.

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Swarts, G.: Le Banc des Pénitents. Etude psychologique sur l'œuvre de la conversion à l'Armée du Salut. Paris: J. Vrin. 1931. 145 pp. 15 fr.

Swarts, G.: Salut par la Foi et Conversion Brusque. Paris: J. Vrin. 1931. 324 pp. 30 fr.

Verlaine, L.: L'Âme des Bêtes. Quelque pages d'histoire. Paris: Félix Alcan. 1931. 202 pp. 25 fr.

Yura, T.: Geisteswissenschaft und Willensgesetz. Kritische Untersuchung der Methodenlehre der Geisteswissenschaft in der Badischen, Marburger und Dilthey-Schule. (Pan-Bücherie. Philosophie, No. 8.) Berlin: Pan-Verlagsgesellschaft M. B. H. 1931. viii + 136 pp. 5.50 M.

NOTES AND NEWS

Professor Edgar S. Brightman of Boston University was elected *Ehrenmitglied* of the *Kant-Gesellschaft* at the Annual General Session held in Halle, May 28, 1931.

Professor George H. Sabine of Ohio State University has accepted a call to Cornell University as Professor of Philosophy.

Clifford L. Barrett, assistant professor at the University of California at Los Angeles, will go to Princeton University next year as Assistant Professor of Philosophy.

Professor Donald A. Piatt of the University of Texas, will go to the University of California at Los Angeles for the year 1931–1932 as Visiting Professor of Philosophy.

Alexander S. Ferguson, Regius Professor of Logic at the University of Aberdeen, will be Visiting Professor of Philosophy at Columbia University for the year 1931–1932.

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How a Logic of "Propositions" Fails of Complete Generality. HENRY BRADFORD SMITH.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 12. June 4, 1931.

George Herbert Mead. JOHN DEWEY.
Mr. Lewis's Theory of Meaning. GEORGE BOAS.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 13. June 18, 1931.

Psychology and the Scientific Method. PAUL HORST.
Are We Machines? And What of It? W. H. ROBERTS.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 14. July 2, 1931.

A Critical Discussion of *Mind and the World-Order*. ALICE AMBROSE.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 15. July 16, 1931.

The Dualism of Means and Value. THEODORE T. LAFFERTY.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 16. July 30, 1931.

Dialectical Arguments against Relative Simultaneity. EVANDER BRADLEY MCGILVARY.
A Note on the Time-Retarding Journey. J. MERRITT MATTHEWS.
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American Journal of Psychology.—Ithaca, N. Y.; Cornell University.
Subscription $6.50. 624 pages annually. Edited by M. F. Washburn, K. M. Dollenbach, Madison Bentley, and E. G. Boring.
Quarterly. General and experimental psychology. Founded 1887.

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Monthly. Each number one complete research. Child behavior, differential and genetic psychology. Founded 1925.

Psychological Review.—Princeton, N. J.; Psychological Review Company.
Subscription $5.50. 480 pages annually.
Bi-monthly. General. Founded 1894. Edited by Howard C. Warren.

Psychological Bulletin.—Princeton, N. J.; Psychological Review Company.
Subscription $6.00. 720 pages annually. Psychological literature.
Monthly. Founded 1904. Edited by Samuel W. Fernberger.

Psychological Monographs.—Princeton, N. J.; Psychological Review Company.
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Published without fixed dates, each issue one or more researches.

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Quarterly. Edited by James P. Porter and William F. Book.

Psychological Index.—Princeton, N. J.; Psychological Review Company.
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Archives of Psychology.—Columbia University Post Office, New York.
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Published without fixed dates, each number a single experimental study.

Journal of Abnormal Psychology and Social Psychology.—Eno Hall, Princeton, N. J.
Subscription $5.00; foreign $5.25. Acting Editor, Henry T. Moore.
Quarterly. 432 pages annually. Founded 1906. Abnormal and social.

Psychological Clinic.—Philadelphia; Psychological Clinic Press.
Subscription $3.00. 288 pages. Edited by Lightner Witmer. Founded 1907.
Without fixed dates (9 numbers). Orthogenics, psychology, hygiene.

Journal of Educational Psychology.—Baltimore; Warwick & York.
Subscription $4.00. 540 pages. Founded 1910.
Monthly (9 numbers). Edited by Harold O. Rugg and coöperating board.

Comparative Psychology Monographs.—Baltimore; Williams & Wilkins Co.
Subscription $5.00. 500 pages per volume. Edited by W. S. Hunter.
Published without fixed dates, each number a single research. Founded 1922.

Psychoanalytic Review.—Washington, D. C.; 3617 Tenth Street, N. W.
Subscription $6.00. 500 pages annually. Psychoanalysis.
Quarterly. Founded 1913. Edited by W. A. White and S. E. Jelliffe.

Journal of Experimental Psychology.—Princeton, N. J.
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Subscription $6.00. Founded 1916. Bi-monthly. Edited by Madison Bentley.

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Bi-monthly. Edited by Knight Dunlap and Robert M. Yerkes.

Psychological Abstracts.—Princeton, N. J.
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Monthly. Abstracts of psychological literature. Founded 1927.

Journal of General Psychology.—Worcester, Mass.; Clark University Press.
Subscription $7.00. 600–700 pages annually. Edited by Carl Murchison and an international coöperating board.
Quarterly. Experimental, theoretical, clinical, and historical psychology. Founded 1927.

Journal of Social Psychology.—Worcester, Mass.; Clark University Press.
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THE JOURNAL OF PHILOSOPHY

SCEPTICAL NOTES ON THE SENSE-DATUM[1]

I

IT is in perception that we are supposed to be nearest to the external world, whether that world be physical or something else. Here it is said to be present to us more or less immediately as a "sensible appearance." Within this sensible appearance it is customary to distinguish a mental event and its object, which latter is called a sensum.[2] What now is the exact nature of this object? This question is usually answered by an attempt to answer two prior questions: How does this object stand to the percipient? and, How does this object stand to what we call the physical world?

The following are typical and well-worn examples of sensa: When I see a stick partly immersed in water, I really see an object which is bent; but I know that the stick is not bent. Since, therefore, the object of the sensible event is not the real physical stick, what is it? When I see a coin obliquely, the sensible object actually before me is really elliptical, so that I may be said to have the experience of an elliptical brown sensum; or when I am looking through slightly ridged or irregular glass so that the objects of my perception undergo certain distortions and may even appear to move, what I actually "see" are various shapes in sensible movement; or when, finally, I look in a mirror, I can distinguish objects which certainly appear to be in a sensible space behind the surface of the mirror.

Now all these objects are characterizable by practically all the adjectives that ordinary people apply to what they call the physical world, and which philosophers have conveniently classified according to the principle of primary and secondary qualities. These objects actually have shape, size, color, temperature, and so on; accordingly, the epistemologists speak of auditory sensa, olfactory, sensa, visual sensa, kinesthetic sensa, and so on. These are the facts, and they are sufficiently clear; that is to say, we need spend no more time trying to identify the situation to which reference is had when people

[1] Listed, after publication, as Research Paper No. 216, Journal Series, University of Arkansas.

[2] In what follows I use the terms "sensum," "datum," and "sense-datum" interchangeably.

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use the term "sensum." The situation is not imaginary, and the question is, What is its true description?

That the epistemologists hold high carnival on this point is, of course, a foregone conclusion. Despite the bewildering variety of differences, however, writers on the subject may be conveniently grouped into two classes, viz., those who take sensa seriously and those who do not. Those who take sensa seriously tend to maintain that sensa are to be regarded as peculiar entities in the world, and that they form a class of things or events coördinate to such classes of things or events as the physical and the psychical. Those who do not take sensa seriously incline to the position that sensa are dependent entities strictly relative to physical objects and minds. The latter are apparently troubled by the suspicion that the sensum conceived as a peculiar entity in the world is an artifact which has become quite disreputable in the light of the working theories of physics and physiology. Both groups hold, however, that the sensum is a "presentation of the object from the point of view of the organism."

Those who do not take sensa seriously incline toward what I shall for the sake of convenience call the physical theory—I do not mean to suggest that any one of them actually holds this theory; I merely present it as a kind of limiting conception. It is briefly this. Sensa are abstractions. Thus in the case of the stick partly immersed in water, the object of the perceptual situation is not a bent object but the entire concrete setting, and this is the real physical stick under two conditions of refraction; and this whole situation is intended in the "appearance" of a bent object. Now since all this is palpably physical—unless one happens to be a solipsist—we may conclude that the sensible object is physical, and that there is no sane reason for admitting the possibility of its being anything else. There is, therefore, no problem here, save the physiological and psychological one as to how the impinging of light waves upon the retina sometimes results in a sensible appearance to the consciousness of a percipient. So that if the problem is, How do I, a mind, make contact with the physical world, which by definition is not mind? that problem shall have to be solved in an investigation of what occurs on and behind the retina. In short, the problem of mind and matter is the mind-body problem, and the mind-body problem is largely sub-cutaneous.

Those who take sensa seriously will reply to this high-handed manner somewhat as follows: The "physical situation" is quite irrelevant. The bent stick and nothing else is the object in question, and it is certainly not physical. No one thinks of disputing the fact that we have a physical stick under two conditions of refraction, but then that is not the point here. The point is that there is a per-

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ceptual situation in which I do actually see a bent object. I can distinguish within the perceptual situation at least two elements, namely, the mental event, the fact that I am seeing something, and the object which I see; and this object is certainly bent. Now the physical stick is admittedly straight; so that what I see and what, in this case, I clearly do not see, are manifestly not the same. Therefore, the theory that they are different is a reasonable theory; therefore, the question as to the nature of the object of the perceptual situation is a sensible question.

It is evident that this debate can never come to a close. To begin with, the contestants are not at all agreed on the situation to be analysed; let alone the analysis itself. According to the one, there is a physical object which is not bent but which under certain conditions gives the appearance of being bent; hence his problem is, How does the object in question happen to have the appearance of being bent when as a matter of fact it is not? According to the other, there is an "object of the perceptual situation," and it is not identical with a corresponding physical object supposedly residing in real physical space out there; accordingly, his problem is, What is the nature of this object? The former assumes an independent physical world, a certain portion of which somehow produces peculiar effects within some consciousness, and thereupon asks the question, How explain the peculiarities of these effects? The latter begins with an "object of the perceptual situation," provisionally assumes the existence of something defined as physical in order to point out that this object is not physical, and then asks, What is the nature of this object?

I shall not attempt a review of all the contemporary realist theories of the sense-datum, for their number is legion. In what follows, therefore, I shall confine myself to a few representative conceptions and the difficulties which they seem to entail. I shall then present and advocate a theory which, I believe, avoids these difficulties.

(*a*) In the case of introspection, so we are sometimes told, the datum is referred to the sensible event which mediates it, so that we now have an identity of datum and psychic event. In introspection, therefore, the datum presents us with the real thing. The sensum is no longer a bare essence, no longer a mere logical entity, but a concrete particular, a *what* plus its *that*. I can see no logical necessity for identifying the introspective datum and the sensible event. In sense perception an essence or meaning is referred presumably to some external object, whereas in introspection it is referred to the organism itself or to some part of the organism. In both cases, I should say, the sense and motor elements converge upon something

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transcending them. Assuming that the datum of introspection is a datum of the intellect and not a datum of sense, there is no clear reason why the datum of introspection can not be said to transcend the sensible event. Evidently the particular existent we call the vehicle of the datum does not perform the function of the datum without transcending itself, since in itself it has no meaning. Having no meaning, it can hardly serve as an essence—unless it is of the essence of the object of introspection to have no meaning, in which case the object of introspection is obviously no sensum in the accepted sense. Either, therefore, we have something of the nature of meaning or we have nothing at all. Thus in the introspection of a pressure sensation the thing to which we attend is a sensation of a very particular kind, and the recognition of this transcends the sensation itself; for in itself this sensible event is a fact of undifferentiated immediacy, which as such is not a datum. Since the sensation and the datum are never necessarily identical, the datum as a mere datum is never necessarily an immediate apprehension of the real thing. This does not mean that the percipient is in no way in direct contact with the physical world, but it does mean that this contact is confined to that undifferentiated immediacy which we call pure sensation, and that since the datum is immediacy discriminated, the datum involves an active principle of the mind which transcends immediacy. This active principle is doubtless somehow continuous with the primitive sensible event, but that the connection is simple and direct is, of course, an assumption.

(*b*) The invariable motor attitude in acts of perception is said to imply that the percipient is attending to something at least as "material" as the body. I am not sure just what force the epistemologists who agree to this wish to give to the word "imply." It is plain, I think, that the fact of motor preparation does not at all *prove* that the object of our apprehension is actually physical or material, since the motor attitude is present also in dreams and hallucinations. All that the fact of the motor attitude actually implies, it seems to me, is that in the perceptual situation the percipient faces something transcending his bodily state, and that he is dealing not merely with a sensible event but with its interpretation as well. And whether or not this is the result of experience is irrelevant. I think a safe conclusion to be this: In sense perception there is a sensible event which mediates a meaning and the reaction of the percipient is relative to the meaning and not to the sensible event itself.

In this connection I should like to make a few remarks with respect to the causal theory of perception. The effect which the object produces or helps to produce within the organism appears to be

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a very peculiar one—one which the categories of the physical sciences certainly do not exhaust. And we are still waiting for a clear-cut and unequivocal statement of this effect; in fact the epistemologists have told us nothing that the physicists and psychologists do not already know. In visual perception, for example, the effect which the object is instrumental in producing within the organism is largely an effect upon the retina, and this effect is somehow transmitted presumably to some brain area; and whatever it is that happens there heaven only knows; the psychologists and epistemologists evidently do not. We are all, of course, quite aware of the fact that correlated with retinal and brain events are certain events we call ideas, but beyond this point we are pretty well in the dark. Whenever, therefore, epistemologists offer the suggestion that the effect an object produces within an organism is an immediate psychic experience or sensible event, they are enunciating a theory and not stating an observable fact. I do not wish to deny that the theory is very probably correct; I merely insist that before it can be philosophically respectable it shall have to offer a principle of connection between the correlated events. If the connection is a causal one—and it probably is—we shall have to state more precisely just what that means in this case, for the causal connection is apparently an extraordinary one. For the physical presence of an object to the percipient is not invariably correlated with a psychic event, nor is a psychic event invariably correlated with a sensum. Consequently, the proposition that the object produces an effect within the organism, is really false. All the facts permit us to say is that sometimes a compresent object appears to have an effect upon the organism and this is sometimes correlated with a sensible event. This, naturally, raises the question, Why do compresent objects produce these peculiar effects at certain times and not at others? And here we shall have to seek refuge in the peculiarities of the organism, which means that our answer will be almost purely speculative. This will be especially true in the case of vision, where the "effect" is mediated by an agent toward which physics, as the quantum theory suggests, still has a very speculative attitude, and which therefore offers little that we can use in a positive philosophy of visual perception. And to treat this fact as though it were irrelevant would be to follow tactics combining the methods of the *a priori* philosopher and the ostrich, a procedure rather unbecoming to people who wish to be known as philosophers of science and scientific philosophers.

(*c*) In perception, so we are told by some theorists, the quality of the sensation is intuited and directly referred to some object, and by this act of reference we recognize the quality of the sensation as identical with the quality of the object. Now this statement either

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means that we have an immediate apprehension of the fact that the quality is common to both sensation and object, or it means that we have an immediate apprehension only of the quality of the sensation and that we project this quality into the object—assuming that this means anything at all.[3] In either case there seems to be implied a rather direct knowledge of the object—at least a knowledge too refined to be explained by an appeal to the dumb practical sense of reality embodied in motor or visceral attitudes. If we mean that the percipient has an immediate apprehension of the fact that the quality is common to the sensation and the object, we clearly imply that his experience of the object is as immediate as his experience of the sensation. If, on the other hand, we mean that the percipient has an immediate apprehension only of the quality of the sensation (the quality greenness, for example) and that he projects this abstract entity into the object, then it is evident, I think, that the correspondence of sensation and object becomes entirely fictitious. When I say that the abstract quality of greenness which describes my sensation is referred to an object and that this quality is identical with the referred quality after I have referred it, I am not, I think, saying anything significant. In other words, if my act of reference is to be significant we shall have to postulate an immediate apprehension on my part of the fact that the quality is common to the sensation and the object. And this implies not only an intuition of the essence of the object, but also an apprehension of the fact that the essence is an essence of the object. If the greenness of the sensation and the greenness of the object are abstract logical entities identical in every respect, then obviously they are identical. But the question here is, How do we come to suspect that the quality which we intuit as belonging to the sensation belongs also to the object, which the sensation does not bring before us? We may have any number of private reasons for believing that the object does exist, but how an intuition of the quality of a sensation can tell us that this quality is identical with the quality of the object, can hardly be decided by some such thing as, for example, a subsequent intellectual reflection, if we had not this quality before us in the original perception. For a subsequent comparison of the quality of the sensation with the quality of the object would seem to require an apprehension of the latter quite as immediate as our apprehension of

[3] In this connection I should like to make a confession which, I am afraid, may betray an unjustifiable naïveté, but which common honesty compels me to make. It concerns the notion of reference or projection—we are said to "refer" the quality of a sensation to an object. Frankly, I do not know what, on realist presuppositions, this means; unless it means that we refer or project a quality whenever by some fortunate perversity we insist upon speaking of something which we really do not know at all as if it possessed a quality which we know perfectly well to belong to the sensible event only.

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the quality of the sensation. But, once again, short of some sort of immediate experience of the object there seems to be little chance of getting the quality of the object as a quality of the object before us in idea at all.

With respect to the knowledge-claim in perception we can, I think, say at least this: In perception the subject does, as a matter of fact—whether he is conscious of this or not—claim awareness of the existence of objects. In fact, if the knowledge-claim implies anything less than that, it at once becomes non-significant, since in that case the question as to whether an apprehended quality is also a quality of an object, appears to be irrelevant. The connection, therefore, between me and the reality I claim to know must be more immediate than that connoted by the term "reference" if my knowledge-claim is to amount to anything more than illusion.

(*d*) If we are optimistic enough to desire some theoretical contact with the physical world, the position that sensa are independent entities neither physical nor mental, and that the existence of the physical world is a theory to account for the facts of sensa, does not appear to be tenable. Let us return to the stick partly immersed in water. If we affirm that the sensum is bent and that this can not be physical since what is called the physical stick is not bent, it is clear that we are no longer dealing with straightforward facts. For we have really compared one sensum, the bent object, with another, the straight object, and it seems obvious that whether we shall call the one a sensum and the other a physical thing is purely arbitrary. The argument, therefore, might with equal cogency run as follows: When I see a real physical stick partly immersed in real physical water, I see an object which is really bent; but when I see the stick not so immersed I see an object which is really straight; therefore, since the straight object is not the real physical stick partly immersed in real physical water, it is clearly not physical. In other words, comparing two appearances and calling the one physical does not demonstrate that the other is not physical.

If at the level of sense perception we are confined to entities neither physical nor mental, how can a percept be at all relevant to the environment which is supposedly physical? We are told that the idea of the physical world is a category defined by postulates. Now if this means that the idea of the physical world is a necessary presupposition of experience, then I do not believe we are justified in maintaining that experience, or any aspect of it, such as sense perception, is confined wholly to sensa, and that there is no logical passage from sensa to the physical world. For experience has now become a matter both of sensa and of the necessary presuppositions that make sensa intelligible. And, on the other hand, the physical

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now appears to be something wholly supplied by the intellect, like a Kantian idea of reason.

Frankly, I can not see that sensa defined as peculiar and independent entities neither physical nor mental serve any useful theoretical purpose. If we have a direct apprehension of sensa, and if these entities are not mental, we already have the mental and the non-mental together. Now if there is an *a priori* reason why the possibility of a direct apprehension of a physical entity can not be accepted, then that very reason will render the notion of an entity which by definition is neither physical nor mental quite useless as a theoretical intermediary between the physical and the mental in perception. More positively, if the percipient can have a direct contact with independent entities which are neither physical nor mental, then there seems to be no clear reason why he can not have a direct contact with independent entities which are either physical or mental. And all the example of the immersed stick demonstrates is, I should say, that the percipient never perceives *simply* what we commonly call a physical object.

The theory under discussion simply postulates the existence of physical objects, and it proposes to justify this by making a second postulate, viz., that belief in the existence of physical objects is primitive and arises with the sensing of sensa. This second postulate, however, amounts to a virtual denial of the original position, namely, that experience is strictly confined to sensa, and that there is no passage from sensa to the physical world. And when in addition to this it is stated that sensa do have a relation to physical objects which they have to no other kind of objects, one begins to wonder if all this does not really mean that the cognition of physical objects is quite as immediate as that of sensa. If belief in the existence of physical realities is primitive and intrinsic to the act of sensing, it becomes clear, it seems to me, that what is really meant by a sensum is a simple or primitive perception.

If we begin by assuming that the perceptual experience is confined to sensa, then such facts as the relative agreement between visual and tactual sensa and the agreement between our sensa and those of other observers do not appear to be very cogent justifications for the assumption that there is a physical world. The fact of agreement between the sensa of various observers is entirely worthless. The fact of the agreement between the visual and the tactual sensa of any one observer seems on the face of it to offer some justification for the assumption; but it is far from conclusive, for on the assumption that experience is confined to sensa, we have in this case simply two correlated sensa and their reference to a common percipient. Hence it really becomes our business to seek the principle

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of correlation within the sensa themselves, for there is certainly no *a priori* reason why we should go beyond them.

According to a very distinguished proponent of the theory under discussion, when the percipient says that he sees a physical object, what he really means is that he directly apprehends a sensum and that this sensum is somehow connected with other sensa which he would directly apprehend should he move his body in certain ways. Now it may be questioned, I think, whether that is what he means or even ought to mean. When I say that I see a physical object I may mean, if I am sophisticated, that I perceive a sensible appearance which I interpret to stand for something which transcends that which I actually see. Now this may include other sensa, which for the time being I do not perceive, but it seems to me to include more. If I move my body in certain ways, I shall not only see additional sensa, but I shall see them in a very determinate sensible location relative to the sensa I perceived in my original position. Moreover, I must move my body in certain determinate ways, which means that I must shift my position relative to real locations in physical space. And the doctrine that this shifting of position in physical space has nothing to do with the relative sensible position of sensa is clearly an assumption. In other words, it does not seem to me to be a settled matter that sensa "are not, in any plain straightforward sense, in the one Physical Space in which objects are supposed to be." It is evident, at least, that my apprehension of other sensa is dependent upon the exchange of real physical positions in real physical space. So that when I say that I see a physical object, this ought to mean at least that I see a sensible appearance and that I could, if I so desired, see other sensible appearances, since their appearance and location in my sensible space are in part determined by the locations of my body in physical space. But this implies that the sensible appearance which I directly apprehend is connected with other sensible appearances by a principle which transcends sensible space. The sensing of sensa is really an abstraction from the perceptual situation; for in the perceptual situation the percipient is placed in the immediate presence of something which quite transcends those peculiar lifeless entities which are neither physical nor mental.

II

I shall now briefly present a theory of the sense-datum which, in my estimation, avoids the difficulites we have been discussing. I do not regard the theory as a complete account of perception, but I believe that as far as it goes it handles the facts with a minimum of metaphor. I shall begin by saying a few words in regard to the idea of "direct apprehension." I should hold that even in perception

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there is no direct apprehension of anything, and certainly not of an object. In fact the expression is really a misnomer, for the simple reason that no apprehension is direct and whatever in experience is direct is not apprehension. If the percipient has any *direct* experience at all it is the experience of an undifferentiated immediacy. As a matter of fact we can not, strictly, say that this undifferentiated immediacy is *his* experience, since immediacy is a simple brute fact allowing of no such distinctions as that of experience and the experienced—such distinctions already presupposing the level of interpretation. Whatever is direct in experience is ineffable, and whatever is more is interpretation and, therefore, indirect. Thus the appearance of a bent object, as in the case of the partly immersed stick—whether interpreted as a bent stick or not—is not something merely sensed. It is evidently something differentiated from the manifold of sense with which the percipient is immediately confronted. Whether the appearance is that of a stick and whether it is in reality bent, is therefore a matter of further experience and further interpretation. And, as we have seen, which interpretation shall be identified with what neo-realism calls the sensum, is purely arbitrary.

Assuming the position that the object of the perceptual situation is physical, can we give a plausible account of the facts of sense perception? When I see a stick partly immersed, the object of my perception will be a straight physical object which, due to the peculiar conditions supplied by the media of vision, appears to be bent but actually is not. The quality of bentness will not, therefore, really belong to the object of the perceptual situation, but will represent an interpretation of an effect upon my retina. And this will be but another way of saying that the apprehension of what in this case is a bent object, is not a direct apprehension. If by hypothesis there is out there a physical situation which supplies the conditions for certain effects within my organism, then it is plain that I have no direct cognizance of the object of the perceptual situation—unless by object of the perceptual situation we decide to mean the effects within my organism, which, however, clearly do not constitute an object of my perception such that one could say of it that it is physical or bent or brown. If in any sense, therefore, I may be said to be in direct contact with the physical world, this is to be understood to mean no more than that there are certain physical events, belonging to a total physical situation, which may in part be described with reference to my organism. What I perceive, therefore, is never a physical object, since what I call a physical object is solely an object of my thought. In other words, my percept is a construction which intends the object. For if it is at all legiti-

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mate to say that the object is sensed, it is at least evident that I never sense it in isolation from the conditions under which it appears to me. In the case of the immersed stick, therefore, there is no more a direct apprehension of a bent object than there is of a straight one. If what occurs is really an *apprehension,* which it must be if we speak of something as *bent,* then it is not at all a direct experience.

The only workable meaning we can assign to the expression "immediate experience," it seems to me, is that of total physical situation (the physical environment which produces effects within the organism plus the effects produced), and this is a matter of brute immediacy in which there are no distinctions of subject and object, experience and experienced, bent and straight. Moreover, the notion of immediate experience of an *object* seems to presuppose the notion of an organism psychically passive, committing us to the theory of the physical world producing ideas within the percipient. Immediacy, although certainly an aspect of the perceptual situation, is in itself an abstraction. Anything, therefore, partaking of the nature of immediacy can never be an object of the perceptual situation. The object of the perceptual situation is an object which the activity of the percipient intends. Now it intends a physical object and this object, although itself extremely complex in that as intended it implicates all the mental and physical events involved in verification, is nevertheless an abstraction from the total concrete physical situation, of which my organism and the effects produced therein are integral parts. So that when I say that I see an object, I must be taken to mean that I am face to face with a physical situation which, if I am intelligent, presents me with cues to other possible situations. Thus when I say that I see a threshing machine a mile away, I must be understood to mean that I consider myself in direct contact with a physical situation of which my organism is an integral part, and which therefore presents me with certain bodily effects which in the course of my experience have come to signify, not a threshing machine, but a threshing machine a mile away. And in the language of the parable of the immersed stick, the "bentness" is an actual ingredient in a physical situation (which includes processes going on in some retina or brain), which in itself is and remains below the level of "object of a perceptual situation," and which to an intelligent mind signifies a straight or bent physical object perceived under rather complex conditions of refraction. In other words, although "bentness" is a factor in the total physical situation, it need not be a factor qualifying what we call the object of the perception.

That which I sense under one set of conditions becomes in the course of time a symbol to me of what I should sense under certain

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other conditions if these were to become actual. That which is sensed is transcended in the symbol, the symbol being a function, so to speak, of two variables, namely, sense material and meaning. Strictly, it is this function that really constitutes the object of the perceptual situation. Thus when I am said to see a stick partly immersed, I am the subject of certain experiences of sense, which in themselves have no meaning. Now I elevate these experiences into a meaningful symbol whenever I respond to the situation by making the judgment that, as an ingredient of the physical situation of which my organism is a part, there actually is a physical object which is bent. This judgment, in which the experiences of sense are affirmed and transcended, will be of the nature of a formula which claims to satisfy every relevant set of sense experiences and their efficient conditions. It will be a categorical claiming to satisfy all relevant hypotheticals. It will claim to satisfy, for example, the sense experiences and their efficient conditions which are meant by the hypothetical that if at some future time I remove the object in question from the water and place it within the conditions of a homogeneous medium, then, all other things being equal, as a factor in that physical situation of which my organism will then be a part, there will actually be a physical object which is bent.

Now whether or not the symbol does actually satisfy at some future time the predicted sense experiences and their conditions, is clearly irrelevant to its function as object of the perceptual situation. For if it does not, it is illusory but none the less the object of the perceptual situation, since, as we saw, it is a function of sense material and meaning. If, however, the symbol does satisfy the predicted sense experiences and their conditions, it is then not only the object, but also the intention, of the perceptual situation; and this simply means that as a factor in the total conditions of the present perceptual situation the symbol becomes self-transcendent. In the case of illusion this self-transcendence is lacking. Or, to use freer and less pedantic language, when I am said to see a stick partly immersed in water, what I see is an appearance of the object in the sense that the meaning which I entertain at this moment implicates other meanings, these meanings being capable of embodiment in groupings of mental and physical events of which I may be the subject. Now the totality of such embodiments, which at the moment I vaguely contemplate, constitutes the intention of my perceptive act; and this totality clearly transcends the perceptive act. An appearance, therefore, is essentially a meaning which implicates other meanings which, if taken separately, are themselves appearances. Now that system of physical and mental events in which these meanings take their place and in so doing become self-transcendent, is the intention of the per-

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ceptive act. So that when I say that my perceptive act intends a physical object, the term "physical" must be understood to have a reference to nothing more and nothing less than the system of events in which the various situations thus virtually predicted have a place and are transcended.

The object of the perceptual situation is essentially an interpretation; and if an interpretation, then, of course, of the nature of meaning. Since, however, meaning, in the case of perception, involves at least possible verification, it is evident that in perception we have the physical and the mental inseparably together. If, therefore, in the perceptual situation we demand an immediate presence, and if what we have called the meaning does not satisfy this demand, then we shall have to learn to be satisfied with the physical effects produced within the organism, which in their self-transcendence assume the rôle of indices of one or more items in the total physical situation. It is the total physical situation that affects the organism, and the discrimination of certain elements within this totality at once places us beyond immediacy, even though it be the lowest possible level upon which anything can with any show of reason be said to be given. Even this level is, after all, a level which, if taken by itself, is meaningless, and if not taken by itself, is self-transcendent. And this means that the object of the perceptual situation, if it is to have any definiteness at all, at once rises to the level of meaning. Whenever I perceive a bent object which I call a stick, I perceive it as an ingredient in a total situation; and if I ask, "Is it really bent?" I really ask, "Would it appear bent in another situation, especially one involving a homogeneous medium of refraction? What effects would it have within my organism in conjunction with the effects due to the elements of another setting?" The total situation, in other words, enters in as a determinant of the appearances produced; but its activity is on the level of immediacy, and on this level there are no objects. As experience reaches the level of perception there emerges the element of meaning, which transcends the present sensible event by way of an implicit reference to the future. This reference entails possible and actual events such as are conventionally called physical—it may entail more, but it entails at least that.

If the judgment, "This thing before me is a bent object," is to have any determinate meaning, it must be seen to imply a certain minimum of hypotheticals, such as, for example, the hypothetical that if I change my position in space with respect to this object or otherwise alter the conditions—say by taking the object out of the water—such and such will be subsequent experience. Or when I say that the particular substance I am handling is sodium, my

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judgment is actually a shorthand expression for a minimum of universal sequences upon which it depends not only for its truth but also, in the last analysis, for its meaning. Thus my judgment will mean some such implicated sequence as this, namely, that if I allow this substance to enter into a characteristic reaction, such and such will be the nature of my subsequent experience; or that if I engage in a spectroscopic analysis of it, it will show certain characteristic lines in the yellow of the spectrum. I do not, of course, maintain that to the average mind these particular sequences constitute the meaning, or even a part of the meaning, of the judgment, "This substance is sodium"; but I do maintain that some such series of events, no matter how "unscientific" and no matter how crudely conceived, constitutes both the meaning and the truth-value (if I may borrow a term) of the perceptual judgment.

To return to the indispensable bent stick: Whenever I say that I see a bent object, I commit myself to the proposition that it is physical by reason of my employment of the term "bent" (and although it is, of course, logically possible for something to be bent without being physical, it is certainly up to those who profess to believe this to offer a plausible example—I do not believe that an appeal to space will do in this case). Furthermore, there is implied in my judgment the consideration that what I perceive is relevant to certain physical and physiological events which I may subsequently choose to bring about. It is implied, for example, that if I superimpose upon the object in question an object which is not bent, both the operation and the observed discrepancy can be expressed in terms of the presuppositions of the physical sciences; that is to say, certain obviously non-mental operations, although in themselves without meaning, will be within the universe of discourse constituting my idea, and will, therefore, be relevant to my present experience. Now all this clearly transcends the present psychical event which I express by saying that I see this or that object. And it is this transcendence that I believe to be the objective reference of the perceptual experience.

If we examine this theory we shall discover that since it, in common with many other theories, simply assumes, rightly or wrongly, the integration in perception of physical and mental events, it is at best but a working conception. However, I believe that the subsequent account of perception in terms of "object" and "intention" is essentially correct and therefore amounts to a verification of the initial assumption. I do not suppose that our theory has achieved the full measure of philosophical respectability; nevertheless I believe it to be essentially at one with the facts and to enable us to handle them with a minimum of sophistry and metaphor. It may be

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urged, nevertheless, that inasmuch as the theory assumes the integration of physical and mental events in perception, in accepting it we shall have on our hands the problem of the principle or structure of this integration; and that unless we can solve this problem, we have essentially a dualism. I am not prepared to deny this; but I would add that it does not seem evident to me that the discovery of the principle of the integration would remove the dualism. At best, I should say, it could give us but a more refined statement of correlations, which, although certainly an improvement, would not, I think, materially alter our account. We shall, so I believe, have to begin with a provisional duality of subject and object, perceiving and the perceived, apprehension and the apprehended, whatever problems and difficulties this may introduce, if we desire our epistemology to be at all plausible. The plausibility of atomism, especially of the neutral entity type, is not, I think, very great.

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VALUE AS SIMPLY VALUE

Professor John Laird and Professor M. E. Clarke insist (quite rightly, I think) that there is an adjective "valuable" which can be predicated of logical subjects in such wise as to imply that it either does or does not attach to these logical subjects quite independently of the judging subject. But they then proceed (quite wrongly, I think) to assert that the adjective in question can not be a relation to interest.[1] There remains their further contention that the adjective *is* not a relation to interest, because it is something else, namely, a unique, irreducible, residual character, which can not be defined or analyzed, but only named by such names as "value," "excellence," or "ought to be."

Turning first to Miss Clarke's argument, we read that value is "*a unique determination of objects, apprehended through judgment, but subsisting, like any other predicate, independently of the judging subject.*" "As this view emphasizes the indefinability of value," she continues, "it is difficult to give at all a detailed account of it."[2]

[1] J. Laird, *The Idea of Value;* M. E. Clarke, *A Study in the Logic of Value.* I have discussed their position in this Journal, Vol. XXVIII, pp. 447–484.

[2] *Logic of Value,* p. 255. I am extremely suspicious of the indefinability of anything. Thus Professor Urban, who tells us that "the ultimately indefinable character of value is of absolutely fundamental significance," has just told us, on the preceding page, that "part of the meaning of value is its validity" (*The Intelligible World,* pp. 137, 139). I can not resist the feeling that if he would name the *other* part or parts of the meaning of value, we could then assemble the parts and have what would look very much like a definition.

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Since there is no way of naming it except by words whose denotation is highly equivocal, it is hard even to point to it. I have tried in entire good faith to find it. When Miss Clarke tries to find it, or discover whether it attaches to this or that,[3] I try with her, in the hope that I can at least discover what it is that she is looking for. And I always end by concluding that when she finds value, as she, at times somewhat hesitatingly does,[4] she is finding that this or that moves or attracts her. At any rate, when I feel that I have found a value, it is because, as in the esthetic experience, I have felt a thrill; or because I have felt the stirring of desire or will; or because I have seen a causal relation, direct or indirect to the interest of sentient beings.

Let me take an illustration of the sort of procedure that I have in mind. Miss Clarke borrows from Witasak a list of four species of objects "to which we ascribe esthetic value,"—sense-data, form, conformity to type, and expression.[5] Of the first three she says that they have no "special relation to the psychical." Now in so far as I assent to her judgment that we "ascribe esthetic value" to such objects, I find that I enjoy them in that peculiar way that I denominate "esthetic"; or I believe that they are so enjoyed by others. If I wish to test the matter for myself I expose myself to such objects, and then ask myself how I feel; or I catch myself in a moment of unmistakable exhilaration, and then ask myself what it is the contemplation of which so exhilarates me. Otherwise I find that the question, "Do I ascribe esthetic value to such objects?" leaves me quite blank. I do not know where or how to look for an answer. Similarly, when I ask myself what sort of thing unquestionably has moral value, and free myself so far as possible from preconception or a mere echoing of customary judgments, I find myself asking either "What do I feel that I or he ought to do?" or, "What kind of person do I admire?" or, "What kind of act or person is helpful rather than hurtful to sentient beings?" Unless I frame the question in some such way I find no answer to it, because I have no notion of the evidence that would be conclusive.

Now when I am unable to find for myself what other people allude to, I should perhaps regard myself as having some defective receptivity, in the case of color-blindness. This possibility I admit, and there is nothing more to be done about it, except to console myself with the reflection that I am in good company. But there is another and to me more acceptable possibility, namely, that the thing is not there. In this case I must account for the fact that very

[3] As, e.g., *Logic of Value*, p. 318.
[4] Cf. *Logic of Value*, pp. 290 ff.
[5] *Logic of Value*, pp. 316 ff.

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respectable and trustworthy people think they find it. The explanation lies, I believe, in the effect of words.

I can not resist the feeling that those who hold the view that "valuable" means just valuable, are the victims of verbalism. They must be supposed to contend that there is a familiar meaning needing only a generally accepted name to be easily recognizable. In that case it should be easy to agree on "value" as its authorized philosophical name. I suspect, however, that the reverse is the case, that it is the name that is in search of a meaning.

My doubts are strengthened by Professor Clarke's explicit appeal to verbal usage. We are told that "in ordinary speech the adjective 'valuable,' in the intrinsic sense, means what ought to be, an object of value is an object which ought to be for its own sake."[6] Now I strongly doubt whether the term "valuable" is used at all in ordinary speech in what the author would regard as "the intrinsic" sense. I submit that the only widely current use of the term "valuable" is economic. If in European and American circles we feel that it is inappropriate to ask a man whether his wife is valuable, it is because wives are not usually bought and sold. If we ask whether a work of art is or is not valuable, we mean to inquire whether, over and above its beauty, the work of art commands a price. If a man says that he values his evenings he means that he has a use for them, and does not wish to give them up to frivolous pastimes, or would not give them up without some substantial return. But this current economic meaning is precisely what Miss Clarke and her fellow-proponents would most emphatically reject.

As to the accompanying phrase by which "intrinsically valuable" is elucidated, we do think of certain things that they "ought to be." But when we do so, we think, if my experience is at all representative, in one of several ways. That which ought to be, is either that which we or somebody else ought to bring to pass; or that which, because of its being useful, we would bring to pass if it did not exist already; or that which would be, if we had our way. But none of these meanings can serve Miss Clarke's purpose.

The persistent impression that there is a meaning of "valuable" attaching uniquely to that word, and incapable of being expressed by any other word or combination of other words, seems to me to betray a philosophical superstition to the effect that where there's a common word there's a common meaning, and where there's a

[6] *Study in the Logic of Value*, p. 110. In the next paragraph the author is kind enough to say that my exhaustive explanation of the genesis, mutations, and integrations of interest is "valuable." Does she mean that it ought to be for its own sake? I strongly suspect that she means that my examination is useful, or has produced results of the sort which is desired by those who are making inquiries in this field.

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unique word there's a unique meaning. Now those who rely on verbal usage and on common sense should make a special study of them, which is scarcely to be expected, since if they had made such a study they probably would not have relied on them. Even without such a special study it is evident that meanings undergo perpetual change, by degradation, associative saturation, ellipsis, or shifting of context; and it is not possible to tell from the face of a particular verbal statement at what phase of such changes it stands. Meanings also express different degrees of directness. Thus attributive judgments, such as "*S* is *R*," may express the belief "*S* is said to be *R*"; or, "*S* has certain characters which are commonly taken to be the sign of *R*"; or, "*S* is what people call *R*, whatever that means." In all of these cases the user of the letter "*R*" may mean nothing by it except the letter "*R*." It is quite possible, and is no doubt frequently the case, that a word is widely used that has no meaning whatever, being merely a verbal echo, or an obsolete habit.

The verbalism connected with the present use of the term "value" is peculiarly scandalous because, in the generalized sense in which it is now used, it is a new and technical word; a word which has recently acquired vogue as the result of a reorganization of philosophy, in which different fields of inquiry have been consolidated to form a new province. "Value" has been adopted as the flag or emblem of this new province, to indicate a hope of articulating or bringing to light a unifying concept. Under the circumstances it is absurd to appeal to the existing or traditional meaning of the term as though it represented some universal, familiar, and ancestral experience. As for my own use of the term, I can only say that I chose it because while its general associations were relevant its meaning was equivocal. It struck me as a good term to give a meaning *to*, rather than as a term already having a determinate meaning to which it was only necessary to call attention. I was further influenced by the fact that the world could be used as verb, noun, or adjective; as well as by the fact that it could be qualified by "positive" and "negative," when one wished to generalize the relation of polarity.

I can not help suspecting that the dissatisfaction with definitions such as the proposed definition of value in terms of interest, is in part the inevitable nostalgia which is the effect of all definition. It changes meanings, even if it does no more than to elucidate, clarify, or analyze them. Those who are attached by habit to old and undefined meanings miss them. Something is lost, even if it be nothing but the familiar darkness, obscurity, and inarticulateness. If a term is invented to indicate a problem, and if the problem is solved, then the term has lost its problematic meaning, and there is a feeling that *this* which we now have is not what we were *then* talking about.

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There are, furthermore, purely verbal associations which the new set of words in which the definition is framed does not and can not possess. In the broad sense no new combination of words can be the "equivalent" of an old word. Assuming "rational animal" to be a definition of man, the effect of substituting the one expression for the other in English literature would produce a surprising and distinctly unpleasant effect. This bathos of definition is peculiarly marked in the case of words highly charged with emotional meanings. Thus, for example, there is no metaphysical definition "God" that can possibly satisfy those who have worshipped God; and this dissatisfaction has nothing to do with the correctness of the definition.[7]

We are here confronted, also, with the whole problem of analysis. The has-been-analyzed is not the same as the to-be-analyzed,—otherwise there would be no point in analysis. This transformative character of analysis does not help us to distinguish the analyzable from the non-analyzable. When "triangle" is analyzed into "plane formed by the intersection of three straight lines," it is no longer *just triangle*. It is to be noted that all subject-matter is "simple" before analysis, in the sense in which a question mark is simple. Knowledge spreads from an initial point, namely, a locus of interrogation. I assume, however, that things are what they appear to be when we get through knowing them, rather than what they appear to be at the moment of attack.[8] I am quite willing to admit that when "good" or "beautiful" is analyzed into object-desired or object-enjoyed, it is no longer *just* beauty and goodness. There is no doubt a something about value which is not precisely the same as object-of-interest, but I am prepared to admit this only provided my critics are willing to admit that the same is true of *all* analysis; and that so far as this line of argument is concerned, value is as analyzable as anything else. If difficulties connected with analysis prove so serious as to compel us to abandon the notion altogether, then the analysis of value will have to go with the rest; but that is another matter, which we are not called upon to decide here.

There are further questions of an equally general nature. Wholes

[7] Similarly, by translating value into terms of interest, and interest into "anticipatory responses which are in accord with the unfulfilled phases of a governing set," Professor Charner M. Perry evidently counts upon the reader's feeling that *value* has somehow been conjured away. There is an effect of absurdity created by the substitution of definitions for the original terms. The same effect can always be produced by substituting the results of scientific or philosophical thought for the terms of familiar discourse and unanalyzed experience. (Cf. this JOURNAL, XXV, 1928, p. 286.)

[8] The reverse view, namely, that we know things best when we know them least, is what I have elsewhere referred to as the fallacy of "pseudo-simplicity." Cf. *Present Philosophical Tendencies.*

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may have characters which dwell *in* the whole, can be seized only when the whole is apprehended "at once," and will be lost in an itemized inventory of the analytic components. Dr. Donald C. Williams in his paper on "The Definition of Yellow and of Good" suggests that there is *quale* which supervenes upon the situation in which interest is taken by somebody in something.[9] There is certainly a fusion of subject and object that is very inadequately represented by the juxtaposition of symbols or of mutually external physical objects. In that case, again, value is analyzable, precisely as other wholes are analyzable,—capable of being broken up into elements which in their severalty are not the whole except in the sense that they *compose* it. I find, however, this great difference between "good" and "yellow": that when I ask myself whether yellow is or is not analyzable, I at least know where to look in order to find out. What *is* this "value" or "valuable" which Professor Clarke thinks is unanalyzable? If I knew I would try to analyze it; and then, if I failed, I think I would cheerfully agree.

But there is another way of presenting the case, in which we at least know what we are talking about. Unquestionably the strongest variety of the view that the adjective "valuable" has a simple and unique meaning all its own, is that which appeals to the so-called "tertiary qualities." Here we are referred to an experience in which there is at least hope of making the acquaintance of the adjective, instead of merely reiterating the name for it, or formulating the logical and epistemological conditions which it must satisfy. Professor Laird expounded this view effectively in his earlier books,[10] though in his latest work his adherence to it is more tentative and irresolute.[11] There is no doubt that we find things to be attractive or agreeable, and that when we talk about attractiveness and agreeableness, we know what we are taking about to the extent of knowing where to look for it if we wish to reëxamine it. Professor Laird's most recent treatment of the question, in which he makes use of the term "recessive" and "non-recessive," does not seem to me to be illuminating.[12] In order to state the matter as simply as possible let us use the term "attractive" to embrace a class of adjectives, such as "enticing," "fascinating," "awesome," etc., whose objectivity or subjectivity is to be considered.[13] With attractiveness we may

[9] This JOURNAL, XXVII (1930), p. 515.

[10] Cf. *Study in Realism*, 1920, pp. 129 ff. I have already examined and criticized the view in *G. T. V.*, §16.

[11] Cf. *Study in Moral Theory*, p. 100, and *Idea of Value*, p. 229.

[12] *Idea of Value*, pp. 228ff.

[13] I waive the point that we have a class of adjectives rather than a single adjective, corresponding to the term "value." The specific qualities might be supposed to be related to value as the determinates red, blue, etc., to the determinable, color.

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contrast certain adjectives such as "boresome," "fatiguing," etc., which are *prima facie* more subjective, and certain other adjectives, such as "pretty," "beautiful," "sublime," etc., which are *prima facie* more objective.

Now the important point is to determine clearly what we mean by "subjective" in this context. As I construe it, when we say that the boresomeness of the lecture is subjective we mean that the lecture *bores somebody*. When I find that the lecture is boresome I experience the fact that it bores me. The adjective applied to the object turns out, when explicated or more attentively examined, to be a state of the subject. In characterizing the object as boresome I have characterized it by the state which it induces. Taking this analysis as a point of departure, I then proceed to construe attractive as *attracts me*. Then, when I turn to adjectives such as "pretty," "beautiful," "sublime," etc., I am already on my guard. These adjectives, too, *may* be elliptical expressions for "arouses in me a motor-affective state of such and such a sort." And when I scrutinize them, passing beyond the words, or judgments based on hearsay evidence, when I perceive the object's prettiness or sublimity for myself and attend carefully to what I perceive, I find it to be *nothing if not* my emotional response.

Professor Laird, on the other hand, offers a quite different analysis, and exploits the absurdity to which it leads. He says that subjectivity means "recessiveness," and that recessiveness means the transfer of the adjective from the object to the subject. "Beauty is not in the aurora. Therefore it is in the beholder's mind. Therefore the beholder's mind is beautiful."[14] It is easy to show that this leads to absurdities, or at any rate to conclusions which no exponent of the subjective view of value would accept. But of course it does,—because it proceeds from a quite unacceptable notion of the subjective! The proper procedure would be for Professor Laird first to formulate the sense in which he would himself accept subjectivity. Presumably he would accept the subjectivity of "boresomeness," or, if not, then of "suggestiveness"; and I can scarcely believe that by denominating these adjectives "subjective" he would mean that when he finds a lecture boresome or suggestive it is really he, and not the lecture, that is boresome or suggestive.

The conclusion of the matter as I see it, is this. When the case seems strongest for indefinability, we are most uncertain as to what it is the indefinability of which is in question. When, on the other hand, we are relatively clear as to what we are thinking about, then it seems to be relatively clear that it is definable in terms of a relation of the object to a motor-affective subject.

I always find myself left with the impression that Professor

[14] *Idea of Value*, p. 236.

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Laird's case rests in the last analysis on epistemological grounds. He feels, and I think quite rightly, that we must be in a position to formulate judgments in which value is attributed to a logical subject; and that in such cases it is implied that the logical subject is or is not as it is characterized. But he perpetually loses sight of the fact that one of the possible characters of an object is its being liked or desired, and that this character can be attributed to objects in judgments which are true or false in the most orthodox sense.

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BOOK REVIEWS

Sefer Ha-ikkarim. JOSEPH ALBO. Edited and translated by Isaac Husik. Philadelphia: The Jewish Publication Society of America. 1929–30. 4 volumes. Pages xxviii + 203; 219; 351; 597.

Professor Husik's edition of Albo's *Book of Principles* is a valuable addition to the "Schiff Library of the Jewish Classics." This edition, the work of the noted author of the *History of Medieval Jewish Philosophy,* is the foremost from several points of view. It is the first complete scientific translation of Albo's work into English. (An attempt at an English translation was made in 1835, but it remained only fragmentary.) The Hebrew text in the new edition is the first critical text that has been produced. Professor Husik collated and compared several manuscripts with the *editio princeps,* on which his own text is largely based. The variants are duly recorded in the critical notes.

Another distinction of Professor Husik's text is that it reproduces in full the original text. In all editions save the first, Chapter 25 of Part III was either omitted or greatly mutilated by the censor because of the decidedly anti-Christian polemics in that portion. Even in the few existing copies of the first edition the portion in question was either torn out or made unreadable by heavy lines being drawn through the text. Several Latin translations were indeed made of the *Ikkarim,* but remained unpublished probably because this as well as similar portions were regarded as being dangerously anti-Christian. However, the Latin translation of the chapter in question was published, but not without the refutation by Genebrardus (Paris, 1566).

Writing in the first half of the fifteenth century, Albo is the last in the series of Jewish philosophers extending back to the beginning of the tenth century. Great originality is not a characteristic of his work. Possibly this very fact accounts for his having been one of the most widely read authors. His popularity is evi-

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denced by the fact that the *Ikkarim* is the second systematic philosophical work among Jewish *incunabula,* the *Guide* of Maimonides being the first. The first edition of Albo's work was printed in 1485, that is to say, only ten years after the first Hebrew book was published. The significance of this fact stands out when we remember that (except Bahya, 1489) no other leading Jewish philosophical work appeared in print until after 1500. Significant also is the appearance of many editions after the *edito princeps.*

Albo's wide popularity is noteworthy because it helps us to understand that he was not merely a compiler, but also a forerunner in respect to a new method of presenting philosophy and of adapting it to life. It is this, his power of adaptation, that constitutes his specific contribution in the field of philosophy. In Jewish philosophy after Maimonides two different methods are discernible. The one goes back practically to Albalag (thirteenth century) and Gersonides (fourteenth century) and leads to Spinoza. This method is characterized by the giving up of all apologetic tendencies and of the attempts to reconcile tradition with philosophy. The second method finds its best expression in Albo. It seeks to link philosophy closely with tradition not only by quoting from the older religious literature, but also by the main tendency itself.

The emergence of this new philosophic approach is due to two main factors. The first was the heated controversy about Maimonides that continued for generations and which resulted in making philosophy a live and popular issue. Philosophy, therefore, ceased to be something abstruse and remote to be studied only by a few experts. The second factor was the increase around 1400 of persecutions and enforced disputations arranged by kings and Popes, in which Jews were compelled to defend their faith. The Christian side was usually presented by learned Jewish converts. Albo himself took an active part in the famous Tortosa disputation in 1413 which was arranged by the Anti-pope Benedict XIII. During sixty-nine sessions, Albo presented and defended the cause of Judaism. The Jewish protagonists in preparing their presentation were constrained to make philosophy not only an instrument of defense against attacks from without, but also an argument to strengthen the faith of some of their own co-religionists whose faith had been shaken because of these disputations. To encompass this dual end, the method of presenting philosophic argument became both polemic and homiletic in character.

This resulted in the philosophers becoming concerned primarily with the very problem that is central in Albo's book—namely, of Principles in Judaism. Maimonides introduced this problem in one of his earlier writings. However, in his later representative philosophic works, he did not develop this problem further. It was taken

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up anew in connection with the controversy that centered about Maimonides, and it was also carried on by Crescas, Duran, and Albo, probably under the pressure of the disputations. The number of the fundamental principles to be laid down was the main issue. (The question as to whether Judaism because of its very nature can have dogmas at all is not yet solved. Only some years ago it was a subject of controversy among Jewish scholars.)

Looking at Albo's work from this angle, we shall not stress too much the question as to the originality of his ideas as many have done and as Professor Husik does in his edition of Albo and in his *History of Jewish Philosophy*. Albo was indeed entirely dependent on Maimonides and Crescas and may have even borrowed, as was customary in those days, some phrases or views from his contemporary Duran, as Jaulus and Gutmann took pains to prove. But this fact should not be foremost in evaluating Albo. The chief theory upon which Albo bases his book—namely, the trinity of principles, was taught and developed long before Duran, namely, by Aba Mari (thirteenth century), who was an opponent of Maimonides. It can be shown, furthermore, that other teachings common to both Duran and Albo were drawn from a common source (Maimonides or Ghazali). Original with and of prime importance in Albo was his attempt to establish a *theory of religion*. His distinction between general and specific principles, his classification of religions as divine, natural, and conventional, his theory of faith,—these and other viewpoints in teleology and even in providence are his own. But apart from all this, his main achievement lies, as was already observed, in the direction he gave to philosophic teaching, making it, so to speak, applicable— that is to say, an influential factor in life.

The composition of the *Ikkarim* extended over a period of at least eighteen years (1410–1428), in the middle of which there occurred the challenging experience of the Tortosa disputation. No wonder then that Albo strove to gather the most constructive and compatible elements in the current philosophies and to weld them together into a *new* unity.

The translation of Professor Husik is a fine piece of work. It avoids skilfully both the danger of a slavishly literal translation as well as that of a free paraphrastic rendering. It is accurate and still pleasantly readable. The subdividing of a long Hebrew sentence into a number of short English ones is dexterously done. The popular aim of the Jewish Classics apparently did not afford the editor the opportunity to give a more detailed introduction which we would have welcomed from his pen. The notes (with the valuable additions by Professor Ginzberg) are very instructive but, again, for the reason just mentioned, there was no opportunity for longer digressive discussions on some points.

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It would take the reviewer too far afield to enter upon observations of a philological and historical character in relation to the translation and some of the notes. They could, however, by no means affect the high value of this edition which can not but evoke the gratitude of every student interested in Jewish philosophy.

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Nouveau Traité de Psychologie. Vol. I. G. DUMAS. Paris: Félix Alcan. 1930. 425 pp.

This is the first book of a proposed seven-volume work on psychology. Each of the volumes is to be the work of a series of collaborators. The present volume is in two parts. First it contains a series of six essays by specialists upon topics which are fundamental to an understanding of psychology, but which are not logically part of scientific psychology itself. Following this material are two chapters devoted to a general and methodological introduction to psychology proper. Each of the special chapters is followed by a selected bibliography upon the topic of the chapter.

The first essay, by Professor R. Perrier, deals with the place of man in the animal series. Here are considered various views in regard to evolution, and some of the evidence of embryology, comparative anatomy, and paleontology which bears upon the question of human evolutionary development is summarized.

The second chapter, by Professor P. Rivet, treats of the anthropological basis of modern psychology. The methods of anthropology, ethnology, and linguistics are explained and compared, and an excellent but brief summary is given of knowledge in regard to fossil man. The subject of comparative linguistics is also outlined.

Chapter three, by Dr. Ch. Champy, deals with the special physiology of sex and of the changes in the organism which depend upon age. The cellular and physiological basis of general bodily growth is first discussed. The physiology of the primary and secondary sexual characteristics is next treated, with special emphasis upon the function of the endocrines. At the end of the chapter the physiology of senescence is briefly considered.

"The general physiology of the nervous system" is the title of the fourth and most extensive chapter, written by Professor Lapicque. After a brief but clear statement of the classic views of the nervous system the author summarizes the more important facts in regard to the structure and function of the peripheral nervous system. He then discusses the dynamics rather than the morphology of the central nervous system. In this treatment the author's own theory of Chronaxie is emphasized. This emphasis seems wise, for while

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we have available many summaries of the physiology of the nervous system, the present chapter is the most satisfactory one in which, in brief compass, the principle of Chronaxie is used as a central theme. A consideration of the relationship between brain weight and intelligence is also given in this chapter.

Dr. A. Tournay has written the fifth section, on the special physiology of the nervous system. In this chapter a brief summary is given of the more generally accepted anatomical and developmental facts of the nervous system. Much space is given to what would seem to many American readers as a rather uncritical treatment of localization of function in the cerebral cortex. No reference, for example, is made to the work of Franz or Lashley. The drawings used in this section are not very satisfactory.

The last section of the portion of the volume that is devoted to the strictly unpsychological basis of psychology is that of Dr. H. Wallon. In this section the problem of consciousness is considered in its biological aspects in a way that is in harmony with what may be called the tradition of the functional psychologies. The presentation given here has most of the advantages as well as disadvantages which are inherent in such functional discussions of mental life.

Immediately following the treatment of the fundamental problems considered above is the first chapter of the truly psychological part of the work. This chapter, entitled *Introduction,* is written by the editor of the volume himself, Professor Georges Dumas. The sources of scientific psychology, the main currents of contemporary French psychology, the influence of sociology and of the reaction school of Pavlov and his colleagues, are especially emphasized. It is interesting, however, to note that the only reference given to Pavlov is to his work on the digestive glands published in 1901.

The second chapter of this psychological section of the volume is by Professor Henri Lalande upon the objects and methods of psychology. After a brief history the methods of introspection, the relationship between form and content in experience, parallelism, behaviorism, and the methods of comparative and sociological psychology are considered. A special section of this chapter is devoted to a review of laboratory methods and the principles of mental measurement. The difficulties inherent in the vocabulary of technical psychology are also presented.

In general, it may be said, judging from the first volume, that in editing this treatise Professor Dumas is performing an important service for French psychology. It is possibly to be regretted, however, that the whole work has been given so distinctly a national cast. The works cited and even the special bibliographies at the

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end of the chapters are, without exception, unrepresentative save in so far as French scientists are concerned. The reviewer can not help believing that had the editor given an international rather than a national character to the work it would have much extended its value.

LEONARD CARMICHAEL.

BROWN UNIVERSITY.

Traité de Psychologie. J. SEGOND. Paris: Armand Colin. 1930. 501 pp.

In this volume Professor Segond considers most of the traditional topics of the older rationalistic psychology. The work is divided into seven sections. In the first section sensation, habit, and instinct are considered. In the second the affective life is treated under the headings of sentiments, emotions, passions, and tendencies. The third, fourth, and fifth sections deal respectively with the formation of ideas, intelligence, and mental activity. In these sections such topics are considered as association, dissociation, attention, effort, abstract thought, memory, forgetting, imagination, creative activity, judgment, anxiety, and faith. The sixth and seventh sections deal with perception, volition, consciousness, and the problem of the self.

"L'âme est l'idée du corps" may be taken as the basic philosophical position of this book. The importance of the concept of purposeful adaptation of the individual to his environment is emphasized by the author.

This volume is no doubt intended to introduce the elementary student to the main problems of rational as opposed to experimental psychology. If this is the case, it may be said to meet the aim admirably, as do, it must also be admitted, many other books. There is, indeed, very little in this volume which marks it as having appeared in 1930. Freud is treated briefly and as a novelty. The major writers quoted who use the English language are Bain, Berkeley, Hamilton, James, Locke, Mill (incidentally, always Stuart, not John Stuart) and Spencer.

LEONARD CARMICHAEL.

BROWN UNIVERSITY.

JOURNALS AND NEW BOOKS

REVUE D'HISTOIRE DE LA PHILOSOPHIE. 5e Année, Fasc. 1. La théorie et la pratique dans la cité platonicienne (2e article): *Raymond-Lucien Klee.* Technique et fondement de la purification plotinienne: *Marcel De Corte.* Le doute cartésien, épreuve des objets de la pensée: *Roger Lefèvre.*

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Bulletin de la Société française de Philosophie. 30e Année, No. 3. Les Formes Actuelles de l'Internationalité. Thèse: *Arthur Fontaine.* Discussion: *Ch. Andler, C. Bouglé, J. Gautier, G. Guy Grand, X. Léon, R. Picard, J. Ray.*

Rivista di Filosofia. Anno XXII, No. 3. Note sull' idea dell' infinito: *G. Tarozzi.* Una memoria inedita di Ferrante Aporti sull' educatione del Clero: *G. Grasselli.* Una recente discussione sul problema di Dio in Francia: *M. Maresca.* Utilità e moralità nella filosofia politica di T. Campanella: *E. Colorni.*

Erkenntnis. Band 2, Heft 1. Kritische Bemerkungen zu Hugo Dinglers Buch "Das Experiment": *E. v. Aster* und *Th. Vogel.* Über den Aufbau der experimentellen Physik: *Hugo Dingler.* Schlussbemerkung: *Hans Reichenbach.* Die Frage nach der Endlichkeit des Weltraums, als astronomisches Problem behandelt: *E. F. Freundlich.* Zum Anschaulichkeitsproblem der Geometrie: *Hans Reichenbach.*

Scientia. Vol. L., N. CCXXXI–7. Early History of the Principle of Place Value: *B. Datta.* Dal Sistema solare all'Universo siderale: *E. Bianchi.* Neue Forschungen über die Biologie der Tumorzellen: *A. Fischer.* L'avenir de l'humanité civilisée à la lumière des sciences modernes de la nature: *D. Kotsovsky.*

Reichenbach, Hans: Ziele und Wege der heutigen Naturphilosophie. Leipzig: Felix Meiner. 1931. 64 pp. 1.80 M.

Schein, Josef: Zentralistische organisation und Seelenleben. 2 Bände. München: Ernst Reinhardt. 1931. viii + 448 pp.; 640 pp.

NOTES AND NEWS

We have received the first copy of the *Thinker, A Magazine of Contemporary Thought,* under the new editorship of Dagobert D. Runes. The table of contents of this issue (September, 1931) is as follows: The Crisis in Philosophy: *Dagobert D. Runes.* Present News from Nowhere: *Horace M. Kallen.* Finding Our Philosophy: *Harry A. Overstreet.* How We Made Utopia: *Will Durant.* Whence the Racketeer?: *Harry Elmer Barnes.* John Dewey and Morris R. Cohen: *Harry Slochower.* If They Were Alive Today: *Ellen Caskey.* Recent Aspects of Psychoanalysis: *Wolf Adler.* The Fear of Growing Old: *Albert J. Levine.* The Economic Anarchy: *G. Francis Beck.* The Influence of Einstein on Modern Thought: *Max Fishler.* Jesus and the Modern Jew: *Ernest R. Trattner.* Are American Women Becoming More Creative?: *Christine Frederick.*

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Volume XXVIII. No. 13. June 18, 1931.

Psychology and the Scientific Method. PAUL HORST.
Are We Machines? And What of It? W. H. ROBERTS.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 14. July 2, 1931.

A Critical Discussion of *Mind and the World-Order*. ALICE AMBROSE.
Book Reviews. Journals and New Books. Notes and News.

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The Dualism of Means and Value. THEODORE T. LAFFERTY.
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A Note on the Time-Retarding Journey. J. MERRITT MATTHEWS.
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A Theory of Value Defended. RALPH BARTON PERRY.
Disinterestedness as Ideal and as Technique. ANNETTE T. RUBINSTEIN.
Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 18. August 27, 1931.

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American Journal of Psychology.—Ithaca, N. Y.; Cornell University.
Subscription $6.50. 624 pages annually. Edited by M. F. Washburn, K. M. Dollenbach, Madison Bentley, and E. G. Boring.
Quarterly. General and experimental psychology. Founded 1887.

Pedagogical Seminary and Journal of Genetic Psychology.—Worcester, Mass.; Clark University Press.
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Quarterly. Child behavior, differential and genetic psychology. Founded 1891.

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Psychological Review.—Princeton, N. J.; Psychological Review Company.
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Psychological Bulletin.—Princeton, N. J.; Psychological Review Company.
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Monthly. Founded 1904. Edited by Samuel W. Fernberger.

Psychological Monographs.—Princeton, N. J.; Psychological Review Company.
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Journal of Applied Psychology.—Baltimore; Williams & Wilkins Co.
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Quarterly. Edited by James P. Porter and William F. Book.

Psychological Index.—Princeton, N. J.; Psychological Review Company.
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An annual bibliography of psychological literature.

Archives of Psychology.—Columbia University Post Office, New York.
Subscription $6.00. 500 pages per volume. Founded 1906. Edited by R. S. Woodworth.
Published without fixed dates, each number a single experimental study.

Journal of Abnormal Psychology and Social Psychology.—Eno Hall, Princeton, N. J.
Subscription $5.00; foreign $5.25. Acting Editor, Henry T. Moore.
Quarterly. 432 pages annually. Founded 1906. Abnormal and social.

Psychological Clinic.—Philadelphia; Psychological Clinic Press.
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Without fixed dates (9 numbers). Orthogenics, psychology, hygiene.

Journal of Educational Psychology.—Baltimore; Warwick & York.
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Monthly (9 numbers). Edited by Harold O. Rugg and coöperating board.

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Journal of Experimental Psychology.—Princeton, N. J.
Psychological Review Company. 500 pages annually. Experimental.
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Journal of Social Psychology.—Worcester, Mass.; Clark University Press.
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The Journal of Philosophy

IMPLICATIONS OF *THE LIFE OF REASON*

SANTAYANA'S critics have often pointed out two strands of thought in his *Life of Reason:* the one an Aristotelian naturalism which he announces so eloquently in his Introduction, the other a modernistic subjectivism in the intricacies of which he in subsequent chapters becomes deeply involved. Many have not inquired into the consistency of these two strands. Delighted with the persuasive ethical system he legitimately unfolds, they were enthusiastic in their applause of the Aristotelian background which makes *The Life of Reason* so significant a philosophical development and achievement. They had tended to ignore the second strand, believing that it was not to be taken seriously. They have regarded it as a mistake akin in significance to the mistake which Santayana attributes to Plato, namely, that "the technique of this combination . . . adds nothing to the significance of what Plato has to say on any concrete subject." But time has shown these gentle critics to be wrong. The integral *Life of Reason* has been followed up by discrete *Realms of Being* which but display the disastrous effects that certain curious epistemological biases have had on Santayana's Aristotelian themes. Indeed one might go on and apply to Santayana more of the language he uses of Plato; for his use of a subjectivistic framework for Aristotelian moral philosophy has been "fruitful in misunderstandings."[1] But where with Plato it was his successors who went astray, with Santayana it has tragically enough been himself. *The Life of Reason,* interpreted in terms borrowed from Locke and Hume and other modern thinkers, has generated *Realms of Being.* And to some of Santayana's most ardent admirers this has been a keen disappointment.

Let us consider certain historical matters that are influential in forming the background of Santayana's philosophical development. By the end of the fifteenth century, the ideal luminary of Mediaeval scholasticism which borrowed its light from Plato waned, and its noon gave place to a twilight and then dimmed into a confusing night. Black clouds to overcast the sky had risen from the experiments of Galileo and his followers; and the early travelers of British empiricism were only then seeking a new light to guide them in their search for truth. Despairing of the ideal light because it had

[1] *Reason in Common Sense,* p. 25.

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waned and because clouds had come, forgetful even of a certain warmth it shed, they set about the preparation of a tangible candle that they might carry it with them. The attempt was commendable in its spirit, but largely futile in its outcome: Locke saw a little of the light and felt a little of the warmth, but despaired of analyzing the tallow; Berkeley saw the light, but questioned whether it came from any natural source; Hume virtually blew it out. In the meantime the Aristotelian lamp glowed, neglected beneath the bushel.

Now when Santayana started out to live his *Life of Reason*, he uncovered the lamp of Aristotle. He had vision enough to appreciate that light was light, and science enough to admit that the lamp was its natural basis; it was natural to conclude that the greater light and warmth of the platonic sun must somehow similarly be connected with a naturalistic mass. To a very significant degree, his *Life of Reason* was a success; it lyricized, refined, and in sundry respects brought up to date the factuality of Aristotle, and it did this in spite of the fact that its author had a personal attachment to the British candle that had lighted the studies of his own youth, and which indeed, now and again, flickers in the privacy of his library.

We can, however, hardly understand *The Life of Reason* without realizing that Santayana has been preoccupied more with the quality of light than with the physics of light or the metaphysics of lamp or candle. Aristotle saw the lamp as a lamp, and he knew it by understanding its "four causes." The light was its function, and its final cause. Thus Aristotle was a student of things, and Santayana a student primarily of final causes and of things only in so far as they are the natural bases for ideal fulfillments.

Aristotle, to repeat, lived in a world of things, things he might know, and know as they were, by investigating their "four causes." Nor were these "four causes," it must be noted, arbitrarily numbered and assigned to things as handy categories of the understanding. As a scientist of wide experience, Aristotle was compelled to reject as Ultimates the matter which had remained after the analyses of his forerunners. He recognized that matter, *materia prima*, was the residuum that remained at the close of analysis, but he saw too that it was never pure matter; it was always matter in some particular form and necessarily the material cause of the thing that was identified by its form. He could no more admit with Democritus the existence of pure matter than he could subscribe with Plato to a belief in pure form. The two were inseparable, and both the material and formal causes were requisite to the existence, and hence to an understanding, of anything.

Still, to a life which implies activity, the mere identification of a particular and the acknowledgment of its material make-up savor

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too strongly of an inactive contemplation. In the first place, not even the contemplation could be complete if there were no understanding of how it came to be. Why it was, in an ultimate sense, was immediately a superfluous and unsophisticated inquiry. To a man of the world in the best sense, it was. What could not be learned of its whyness after one had inquired as to how it came to be must end in futile speculation. Still, it remained to ask "who or what made it," and the efficient cause became a philosophical necessity as it had been an objective fact.

But even the discovery of this third cause did not exhaust the possibility of a knowledge of things. To a man for whom "to be" was "to do" it became imperative to learn what might be done with these discovered things. This point may be considered a crisis in Aristotle's system. Aristotle faced it with a presence of wits that has left his system the outstanding metaphysics the mind of man has not "produced," but discovered. Among other things, Aristotle was a biologist and zoölogist. Had he known the Hebrew Scriptures, he would have been first to notice that the world was made and Adam subsequently placed in it to thrive as he might; Jehovah had not created Adam and then made a world for him. As it was, Aristotle saw with a vision which, if it did not actually anticipate our modern theories of evolution, remains on the whole consistent with them. He saw man as merely one of the animals—the highest and most complex of animals indeed, an animal which besides performing the various functions of reproduction, nutrition, growth, locomotion, and sense experience, also *thought*,—but still, an animal and with other animals and things, striving for the adjustment that might insure its survival. With this clear and sophisticated view of things, the naturalist-philosopher met the crisis and survived it. And as man himself has his ideal fulfillment, so have all other things. Every substance, along with its source in some prior substance and its actual form and its dependence on some agent, has also its functions, uses, ends, or final causes. These uses are not capriciously read into things by anthropomorphic fancy; they are discovered to be part of what things genuinely mean. Indeed these uses are often hostile to man and his human ends. They must, however, be taken into account, no matter how acutely they run counter to man's purposes and ideals. They must, like the other causes, be understood if any thing is to be adequately understood. Thus Aristotle had, in a word, perfected a system by which man might understand things and yet had avoided the danger of making man "the measure of all things."

Final causes then were not creations of the mind that might perceive them. They were the possible actualizations of the poten-

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tialities in external objects; they depended upon the objective relations between objects, whether man was involved or not. Containing many potentialities, both things and men might fulfill one or another; and it was necessary to elaborate a system of ethics which in thorough compatibility with the antecedent metaphysics might evaluate these various fulfillments. Aristotle devoted some attention to these ideal fulfillments though it is possible that, in the matter of ideals, he failed to note some of the most rare yet lofty fulfillments possible to the function of the human organism which is the mind. Over-wary of the extravagant exaggerations of the Platonic ideal, he was content to identify the ideal with the best that had empirically been found possible. It is at this point in the ethical development that George Santayana enters upon the stage with his *Life of Reason,* accepting the natural basis which Aristotle had discovered and expanding the ideal fulfillment, in other words, clarifying for practice, the ideal relation that should exist between natural impulse and ideation. The ideal relation is that lofty plane upon which the mind, honestly aware of the natural world in which it lives, seeks, by a process of reasonable reconciliation, the adjustment which will make the life of man harmonious in its activity, rich in its appreciations, and happy in its process. Thus Santayana himself proposes having started "with the immediate flux, in which all objects and impulses are given, to describe the Life of Reason; that is, to note what facts and purposes seem to be primary, to show how the conception of nature and life gathers around them, and to point to the ideals of thought and action which are approached by this gradual mastering of experience by reason."[2]

Thus admitting the ideal which reflection creates (and which is therefore not necessarily encountered in the facts of experience), but connecting it with its natural basis which makes it definable, Santayana proceeds to sketch in glowing and permanent colors the efficacious life of reason in our world of things. He begins judiciously with the natural history of reason. It is by no means an unfortuitous way to begin the unification of "a trustworthy conception of the conditions under which man lives with an adequate conception of his interests."[3]

Before reason can harness the powers of natural impulse to the pursuit of those objects of ideation, it is obvious that the conditions must be defined and the interests discovered. Historically, this is a slow process. The conditions must be envisaged both as the conditions of the pursuit and the potential conditions of the

[2] *Reason in Common Sense,* p. 32.
[3] *Reason in Common Sense,* p. 28.

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enjoyment of any ideal end, and the elected interest must maintain a harmonious relationship with these conditions. When these "definite interests are recognized and the values of things are estimated,"[4] harmonious activity evidences the birth of reason.

The mind in its first groupings, unaware of its own interests, finds in the external world only an unordered chaos and flux. Then, as the mind begins to distinguish between pleasure and pain, there results a certain consciousness of itself, and there seems to be a certain foothold, a certain vantage point in the flux. In the light of the pleasures that are to be sought instead of the pain, by a superb effort, the mind arises to a conception of things, of the conditions which because of either their hostility or their sympathy toward that pursuit are at length perceived, and perceived moreover as part of a certain order. The mind has arisen to an appreciation of the world: there is something that lives; there is something to live for; and there is the place and requisite conditions for living. Hence, reason, as Santayana aptly says, "enters into partnership with the world and begins to be respected there; which it would never be if it were not expressive of the same mechanical forces that are to preside over events and render them fortunate or unfortunate for human interests."[5]

Up to this point, Santayana is faithful to a naturalistic interpretation both of the world and of experience, and the natural history of reason seems altogether plausible and acceptable. At this point, the point at which the ethical system is to begin in its more constructive aspect, there is an important crisis for Santayana to meet. He seems to hesitate a moment as though bewildered and then proceeds resolutely along the chosen path much as though there had been no doubt as to which course he should follow.

Santayana's preoccupation with human values has, in a general sense, been suggested. It proves significant in the further development. What has seemed to be a thoroughly naturalistic interpretation of the mind's growing acquaintance with the world in which it finds itself (an interpretation which we have applauded), now seems, more subtly than dramatically, completely inverted. "Nature," he has maintained (and his language seems plain enough), "is the sum total of things potentially observable, some observed actually, others interpolated hypothetically; and common-sense is right as against Kant's subjectivism in regarding nature as the condition of mind and not mind as the condition of nature."[6] And later, as one emerging from a profound reverie and sensing

[4] *Reason in Common Sense*, p. 47.
[5] *Reason in Common Sense*, p. 62.
[6] *Reason in Common Sense*, p. 104.

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anew the familiar objects of his material surroundings, he says, "Nature is reason's basis and theme; reason is nature's consciousness; and, from the point of view of that consciousness when it has arisen, reason is also nature's justification and goal."[7] Or again toward the end of *The Life of Reason* he remarks, "Though meaning is the object of an ideal function, and signification is inwardly appreciable only in terms of signification, yet the ideal leap is made from a material datum: that in which signification is seen is a fact."[8] Perhaps we misunderstand the language, but it sounds much like the lingering memory of a once naturalistic interpretation.

Yet in the meantime, Santayana seems to have deserted the cause. He is headed toward a pure Berkeleyan idealism. If we find him changing his course again before he reaches this startling goal, it is because (to put it logically), he lacks the god which is the necessary support of Berkeley's "qualities," and (to put it personally), he has imbibed more than he has perhaps realized of the modern spirit.

In any event, he has gone far enough to treat sensation on the basis of British epistemology. And thought, previously a form of life to be "conceived on the analogy of nutrition, generation, and art,"[9] is now exalted, if not actually to the proportions of the Berkeleyan God, to a position where it must assume some of the functions of that deity. "What is conceived to support the physical qualities is a pseudo-psychic or vital force," he says now; "it is a moral and living object that we construct, building it up out of all the materials, emotional, intellectual, and sensuous, which lie at hand in our consciousness to be synthesized into the hybrid reality which we are to fancy confronting us."[10] Thought goes on to attribute to these objects their systematic distribution and their settled character. "Water does not run down hill more persistently than attention turns experience into constant terms."[11] To understand the full implication of this latest assertion, psychologically true from even the most naturalistic point of view, it will be necessary to examine the status of "experience" in the light of the foregoing.

Experience, sensuous experience, is no longer food for knowledge. Knowledge, says Santayana, "is a salutation, not an embrace."[12] Such a remark is in one sense entirely true; for in

[7] *Reason in Common Sense*, p. 205.
[8] *Reason in Science*, p. 31.
[9] *Reason in Common Sense*, p. 67.
[10] *Reason in Common Sense*, p. 73.
[11] *Reason in Common Sense*, p. 74.
[12] *Reason in Common Sense*, p. 77.

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knowing a thing we need not physically possess it nor have it present to sense, provided it is the object of our intent and embodies the form we entertain of it in idea. But in any other sense the remark goes astray. It becomes false if it implies that what is intelligibly present in mind can not actually be found as the nature of particular substances. Yet beneath Santayana's felicitous use of this pregnant phrase something of this kind happens. Knowledge, for him, ceases to live on the objects of experience. Though he previously agreed with Aristotle that "everything ideal has a natural basis,"[13] he now and again in his preoccupation with the ideal entirely ignores the natural basis, the natural basis, which, we assume, would be known through sense. Because it is the ideal aspect of things "that endows existence with character and value, together with representative scope and a certain lien upon eternity,"[14] and because this "supersensible substance, reality, or independent object, does not itself descend into the arena of immediate sensuous presentation,"[15] sense experience is very elaborately discredited in its entirety. This liquidation of the validity of the objects given in sense experience, and indeed, of sense experience itself, has become a logical necessity; either the ideals of thought are real, or the sensed objects are real, and if the reality is to be attributed to the latter, "all intelligible objects and the whole universe of mental discourse would then be an unreal and conventional structure, impinging ultimately on sense from which it would derive its sole validity."[16] The quotation suffices to indicate what Santayana must inevitably choose. Reason wins the day and what "evidence" must still be attributed to sense is given a diplomatic passport into the realm of "pure confidence in reason."[17] Still, no triumph is without its costs, and Santayana grows a bit wistful over the inevitable and complete loss of matter. Even if the only value of the candle be in terms of its light and warmth, the light and warmth must be sacrificed if the tallow is removed. Santayana finds himself confronted with the dangers of a neo-Platonic identification of the efficient with the final cause; he copes with this danger somewhat successfully, but his weapons are at best those of British empiricism and he emerges a Platonic Locke.

We are now ready to take our first excursion of inspection into one of the provinces of essence. Matter is preserved, deftly enough, and the dignity of mind with the reality of ideals is also maintained most charmingly, most persuasively. "You will not

[13] *Reason in Common Sense*, p. 21.
[14] *Reason in Common Sense*, p. 79.
[15] *Reason in Common Sense*, pp. 76–77.
[16] *Reason in Common Sense*, p. 78.
[17] *Reason in Common Sense*, p. 80.

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be so idiotic," says Santayana, "to make no inference from your sensations; you will not pin your faith so unimaginatively on momentary appearance as to deny that the world exists when you stop thinking about it."[18] We are at first astounded with what seems to be an apparent lack of distinction between *thinking* and *sensing,* but, remembering that the "evidence of sense" is still "pure confidence in reason," we again permit ourselves to be led on, keeping, nevertheless, a careful eye on the path that we may not be lost should this particular province, or indeed the entire realm of essence, prove an unsatisfactory environment for the animals we are, nourished by and dependent on a world of things.

Sensuous data are "appearances" and we must proceed to investigate just what it is that they are evidences or appearances of. Santayana is honest enough when he insists that "your present impressions, dependent as they are on your chance attitude and disposition and on a thousand trivial accidents, are far from representing adequately all that might be discovered or that is actually known about the object before you."[19] We can not deny that we do not possess the kind of mind which, once having seen a steamship, will not, as it stands on the shore and senses the distant smoke along the blue horizon, immediately construct the implied ship and the necessary smoke-stack. Yet the process is one of purely natural association. If in the finite series of actual ships we have perceived, we have found a certain similarity, it has been a similarity between particulars, ships actually known, from which our minds abstracted a notion of ships and of smoke-stacks. Indeed, the better we have known the ships, the more adequate will be our appreciation of similarities and of dissimilarities. But Santayana prefers to treat this abstracted notion of ships as an essence which the sensation of "ship" has now and then saluted, but never "embraced." Having preserved the material ship, he forbids our knowing more than its essence, which it must be noted is different from the abstracted notion we have gathered from repeated experiences. "The several repetitions of one essence given in consciousness will tend at once to be neglected, and only the essence itself—the character shared by those sundry perceptions—will stand and become a term in mental discourse,"[20] and the only reality.

Such a conclusion seems to imply a difficulty possibly traceable to a confusion of sensations and their causes. But sensations are not their own causes; if they were, to insist that knowledge embraces objects would be as admissibly absurd as it might be for a

[18] *Reason in Common Sense,* p .81.
[19] *Reason in Common Sense,* p. 81.
[20] *Reason in Common Sense,* p. 74.

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man continually to embrace his own arms. Sensations, rather, are the arms of the mind; and without the selective and integrating government of the mind, sensations would embrace at random and indiscriminately, quite as impulse unruled by ideation might fare in the everyday world. Mind without sensations would be like an armless man, starving alone, beneath a cherry tree. By integrating and classifying the reports of the senses, the mind comes to know objects, and to recognize their relations each to each, and each to all, and of itself to each and all. And it becomes proverbial that the mind is more in a position to abstract and infer, the better it understands "the four causes" of the particulars. But if "to discover a physical object is to pack in the same part of space, and fuse in one complex body, primary data like colored form and tangible surface," [21] or to know anything is merely to recognize the appearance of an essence, are we not constructing a fictitious universe on the evidence of sense, and, having taken refuge in it, promptly renouncing all allegiance to the very sensations which originally furnished the data? There may be a kind of knowledge which is knowledge-of-similarities-only; but the philosopher, if he would be a man of affairs and journey to Rome, must embark on a particular ship, and that ship must exist on its own account, ideally as it may be made to function. Sensations will continue to be physical reactions to the natural objects that produce them, and the external objects will be the very objects that produce those very sensations, and knowledge will be mind's knowing them as such; for while impulse naturally acts on particulars, ideation sees the entire picture.

One will not presume to deny the reality of facts which are not directly given in presentational immediacy; for such a denial would truly be the complete annihilation of an entire universe of legitimate intellectual concepts. The theory of evolution is a real hypothesis which no single sensation can verify, and the Republic of Plato is ideally existential. But in the case of the first, if the scientist were not to find it supported by the evidence of known particulars, he would be compelled to discard it as a theory and to relegate it to the paradoxical existence of an untruth; and in the case of the second, when Plato had studied the Greek city and abstracted from it the concept of an ideal fulfillment, he still loved his native Athens too dearly to cast it aside like a "squeezed orange." [22] On the other hand, objects sensed are just those objects and neither particular nor universal essences; and, if I understand Santayana correctly, his almost invariable failure to concede

[21] *Reason in Common Sense*, p. 162.
[22] *Reason in Science*, p. 71.

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to sensation the status of a process between mind and the material objects of knowledge leads to the logical but embarrassing necessity of reducing the whole world to a realm of essence.

The transition, or inversion as it may be, is, as has been indicated, more gradual than dramatic, and there is no point in *The Life of Reason* at which the reader can more than be aware that the naturalistic interpretation is receding and giving way to an advancing epiphenomenalism which is the thesis of development in *The Realms of Being*. The first step identifies the essence with "the character shared by sundry perceptions," and material things begin to grow unknowable as their sole function becomes that of subtending these qualities or being appearances of the essence; but a doctrine which attributes the sole reality to the recurrent characteristics of sensed particulars or perceptions (which are at the same time reduced to unknowable substrata) and elevates these characteristics into a quasi-Platonic essence has inescapably separated "the four causes" from Aristotle's substances or "things" of which they are the causes, consigning the final cause to mind, and rendering the efficient cause an external unknowable.

Essences, then, originally merely the mind's ideas of the external objects of knowledge, become hypostatized over and above the particular objects of which they were previously the concepts. But this would be too simple a conclusion. The mind will infer a candle when the eye sees a flicker and construct a ship out of mere smoke; consequently the essence has been expanded to class proportions and any particular will unknowably support the identical essence, the class name, or more truly, the ideal and only reality. But Santayana was not content to rest here. Indeed, he retraced his steps, but he came back to a world of objects imbued with a foreign spirit; it was impossible to rematerialize objects in the old sense, so what he did was to reparticularize and democratize essences. In this way he sought to make mind at home in a new world and to free it from the annoyance of sensuous distraction.

The first volume of *Realms of Being* defines the nature of essences with clarity and definiteness. They are infinite in number and variety, and eternal in their scope and being; and though "essences are the only objects of indubitable and immediate experiences,"[23] they are altogether indifferent toward being experienced, descending into the arena of understanding only casually, if not, indeed, purely by accident. Essences are entirely free, and where there are implications, they "must be something imposed on essences by human discourse."[24]

[23] *Realm of Essence*, p. 165.
[24] *Realm of Essence*, p. 81.

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The logical development, if we may on our own account insist on implications, is the reduction, or perhaps the elevation to essences, first, of the entire world with all the particulars which lend continuity to experience, and then, should we rashly become self-conscious, of ourselves, and even of Santayana himself, should we pause to consider him. His answer to the questions of formal and final causes has been the sacrifice of the very things of which he has sought to explain the causes.

In *The Realm of Matter* Santayana returns to cope with the problem of efficient and material causes. What he actually attempts to do is to know what his previous position has rendered "the unknowable." To predicate the "presumable," not to mention the "indispensable" properties of the re-enstated substance involves certain contradictions and inconsistencies which it is hard to imagine that Santayana himself would try to reconcile. Clearly, to know so much of substance, if essences only are given to the understanding, necessarily implies an essential status for substance which is probably not Santayana's intention. On the other hand, to know substance as substance and not a new kind of essence would mean that essences are not the only objects of knowledge. Moreover, this knowledge of substance might be developed in either of two ways. We may know the special properties of each particular instance of substance, in which case we have come home to the Aristotelian "things" which Santayana has seemed progressively to deny; or we may know only the secondary qualities of substance, in which case, we must assume an unknowable substratum supports essential qualities that we do know, necessarily as essence; and Locke and Plato shake hands in the twentieth century.

When we have laid aside the writings of Santayana in all of their charming persuasiveness, to criticize his doctrines seems meanly to bark at him for "browsing so innocently" [25] in the pastures of his own speculation, but to accept him solely on the merit of his art would be to consider him merely a literateur. He is a literateur, but he is also a philosopher; and because his philosophy contains so much that is acceptable, we may be free to question that which in our way of thinking seems less worthy of acceptance. Indeed there has been so much of the acceptable that American naturalism has claimed *The Life of Reason* as partisan literature. The *Realms of Being* to which the movement objects is now seen to be the logical development of the metaphysical implications of the earlier works. The mistake was obviously in the epistemological approach which inevitably separated "things" from their "causes"; and the unfortunate result is an untenable metaphysics, though

[25] *Realm of Matter*, p. 1.

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we may, and no doubt shall, because of its intrinsic applicability, seek to live the life of reason which Santayana has so beautifully expounded and defined in our own world of Aristotelian things; and as good citizens, we will yet acclaim Santayana, detached and disinterested as he may be, one of the foremost of men in our community of natural objects.

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SOME REMARKS IN DEFENSE OF THE OPERATIONAL THEORY OF MEANING

THIS paper does not pretend to be a complete analysis of the theory of meaning which has been given the name "operationalism" by Professor Bridgman. It attempts rather to present some considerations which may make that theory seem less bizarre to its critics.

According to our understanding, Professor Bridgman addresses himself primarily to the meaning of scientific concepts, particularly those of physics, although at times he seems to extend his theory to other fields.[1] The operational theory, then, is not concerned with the "meaning" of logic and mathematics or of works of art. Regarding this self-imposed limitation, it is only fair to add that one need not maintain that all symbols have meaning in the same sense.

Furthermore, the theory attempts specifically to define the abstract concepts of physics in terms of the concrete, physical world of common sense. The common-sense world is presupposed, but this presupposition, it is essential to note, is metaphysically neutral, for the question of the ontological status of physical objects is not raised. Consequently, criticisms of the operational theory which concern the nature of common-sense objects and their relations to sense-data, ideas, minds, the absolute, experience, etc., are irrelevant.

Operationalism is a technique for building concepts. That such a technique is needed is illustrated by the history of the sciences. No science has been free from concepts which turned out for one reason or another to be unacceptable. One has only to list essences, powers, substantial forms, imponderable fluids, and indetectable forces to become immediately aware of this. Anyone, whether proponent or opponent of operationalism, will probably admit that the sciences are better off without such terms. The least that can be said for operationalism is that it offers not only a means of avoiding them but an explanation for their rejection. It specifies, in short, that for a term to have meaning its definition must formulate

[1] *The Logic of Modern Physics*, p. 5.

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operations which enable us to determine the truth or falsity of the propositions in which the term occurs. By truth or falsity is meant correspondence to fact in the naïve sense of the word "fact."[2]

Criticism of the theory has centered mainly about two points. First, what types of assertions are operationally meaningless? This question arises from the uncertainty as to whether the operations meant are actual or possible and the difficulty of rendering precise the latter alternative. Second, critics, distinguishing between a criterion of meaning and a theory concerning the content of meaning, have held that if operationalism offers both, then where operations are different, meanings are different. Hence, the term "electron," for example, would have as many distinct meanings as there are ways of verifying experimentally the presence of the entity in question. We shall treat these two points briefly in an effort to clarify to some extent the numerous issues involved.

I

To begin with, it is sufficiently obvious that when the operationalist defines a concept in terms of operations, the meaning of the concept thus defined is not restricted to performed operations or to operations which are actually going to be performed. Einstein, for example, does not mean by "simultaneity" operations already performed, nor does he require that we actually perform the specified operations each time the concept is employed. Operationalism must be understood to state that a concept has no meaning unless its definition formulates *performable* operations, unless in short the propositions in which the term occurs are empirically *verifiable*. Thus to see what is meant by "operationally meaningless" we must make clear what is meant by the "impossibility" of verification.[3]

To term a proposition unverifiable may mean any one of three things; only the third suffices to exclude the proposition as meaningless. In the first place, the impossibility of verification may be purely practical. Here propositions (e.g., concerning the other side of the moon) are operationally unverifiable not because operations have not been given, but because they can not at present be carried

[2] As Professor Bridgman points out, Einstein's technique in formulating the definition of the simultaneity of spatially-separated events in the Special Theory was operationalistic and served in no small part as the inspiration for *The Logic of Modern Physics*.

[3] This discussion is limited to ordinary empirical verifiability. All other so-called types of verification, such as intuitive and dialectical demonstrations, depend upon confusions which can not be investigated here. The treatment of verifiability given in this paper is an elaboration of the logical positivistic technique, of which operationalism can be shown to be a special case. (See "Logical Positivism," Albert E. Blumberg and Herbert Feigl, this JOURNAL, Vol. XXVIII, pp. 281 ff.

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out. Such propositions may have little practical importance, but since operations are specified which would determine their truth or falsity if they could be carried out, they are meaningful.

A second type of proposition is important in that it gives rise to the mistaken impression that for operationalism all false propositions are meaningless. This is primarily a verbal confusion. Propositions (e.g., concerning a perpetuum mobile of the second type) are sometimes termed unverifiable when what is meant is that the propositions contradict well-established generalizations of the sciences. But such propositions, though false, are meaningful, for we can give the conditions under which we should call them true or false (e.g., a closed system exhibiting a decrease, rather than an increase, in entropy). A proposition to be false must be meaningful; operations must already have been given which enable us to determine its falsity.

Finally, there are assertions whose verification is *theoretically* as well as practically impossible. It is this and only this type of assertion which operationalism holds to be meaningless. The theoretical impossibility of verification is therefore a fundamental notion—and a dangerous one, since it seems to open up a fertile field for all manner of apriorism. However, for the operational theory, as for any other empirical approach, the *a priori* synthetic judgment does not exist. Consequently, the *a priori* impossibility of verification must in all cases rest upon analytic or non-factual elements.

Theoretically unverifiable assertions, accordingly, fall into two classes. The first is really pre-operational and concerns *a priori* analytic impossibilities of verification. It includes patently self-contradictory statements (e.g., "*p* and not-*p*"), assertions which contain implicit self-contradictions (e.g., "All objects in space doubled in size."), and confusions of logical types (e.g., a statement in which a function is taken as argument to itself). Such groups of symbols are meaningless operationally because they are nonsense; they are all mistakes in logical syntax and lie wholly within the language or symbolism.

The second is the most important and includes all propositions containing undefined, but not logically indefinable terms.[4] These propositions are without meaning precisely because definitions are lacking, operations have not been formulated. To call such propositions meaningless signifies simply that and nothing more profound. It remains possible, obviously, to convert the same symbols into a

[4] By indefinable is usually meant not-definable explicitly or *in use*. It is to be observed that the indefinables or primitives must also receive operational or applicational definitions by pointing.

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meaningful proposition by giving the undefined terms operational definitions.

It may seem that this delimitation has shorn operationalism of what has been called its corrective efficacy and that the apparent radicality of its thesis has proved to be purely verbal. However, this is not entirely the case. Wholly apart from the application of operational or similar criteria to the traditional propositions of philosophy, the fundamental utility of the view is the enormous increase in precision which it brings to scientific concept-building. It makes explicit the procedure of empirical definition which distinguishes physics from pure mathematics. By focussing attention upon verifiability (as well as truth) it offers a safeguard against the introduction of such concepts as Newtonian absolute time. There the term in question was only apparently defined. Newton, no doubt, had certain ideas concerning it, but the essential point was never made explicit, namely, that statements concerning absolute time-intervals depended for verification upon the existence of a signal (e.g., light) which travelled with infinite velocity. The operational analysis, with its insistence upon verifiability soon revealed this. The result was Einstein's demonstration in the Special Theory that verifiable propositions concerning time-intervals involve a stipulation or convention and that when the most natural stipulation is made (i.e., the constant velocity of light in vacuo) time-intervals turn out to be relative to the state of motion of the reference-frame.

Another much-cited example of operational analysis is the question of the meaningfulness, within the quantum theory, of propositions concerning the position and velocity of an electron. The familiar uncertainty relation sets a theoretical, not practical, limit to the exactitude with which the two quantities can be measured. Hence, beyond that limit the use of the two terms "is just as meaningless as the use of words whose sense is not defined."[5]

Indeed throughout the history of the sciences there has been a definite need for such a technique. Time and again confusion has arisen, as in the case of caloric, between the detection of the non-existence of some substance and the inability to detect its existence or non-existence, between a false proposition and a meaningless one. Operationalism, far from confusing the two, offers a means distinguishing between them by demanding that all symbols, at least in physics, be given unambiguous empirical meanings.

To sum up, operationally meaningless propositions arise from (1) mistakes in logical syntax, such as self-contradictions and con-

[5] W. Heisenberg: *The Physical Principles of the Quantum Theory*, p. 15. The failure to see the full significance of the distinction between practical and theoretical impossibility of measurement (and verification) vitiates the criticisms of Professor A. P. Weiss (*Scientific Monthly*, Dec., 1929) and others.

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fusions of logical types, and (2) failures to define empirically terms within the propositions.

II

Critics have raised the following question about the operational theory: Does it offer simply a criterion of meaning or does it specify, in addition, the content of meaning? It may indicate, such critics say, merely the conditions under which a term has meaning, again it may assert also what the meaning of the term is. Operationalism in the first instance would hold that a term is meaningless unless its definition formulates operations which determine its application; in the second instance it would assert furthermore that the meaning of a term *is* the occurrence of a specified event under the conditions specified.

The distinction seems to be arrived at on the analogy of arguments from circumstantial evidence. It is supposed that we must distinguish between the data or signs and the things or events, existentially distinct from them, for which they serve as a basis of inference. A crime, for example, is not identical with the traces by means of which it is discovered, nor is oxygen the same as the tests which determine its presence. It then follows readily that if operationalism be understood in both of the two senses indicated above, a difference in operations will necessarily yield a difference in meaning. This has the consequence, apparently, that in the case of any ordinary scientific object, such as an electron, the multiplicity of methods of detecting its presence would result in a corresponding family of distinct meanings for the term.

The argument in the end rests upon the traditional notion of substance and attribute and the failure to distinguish between verification and inference. This can best be made clear by two illustrations. First, in the case of simultaneity we are concerned with a relation between two events. To say that two spatially-separated events are simultaneous means operationally that an observer situated midway between them will receive light-signals from them as psychologically simultaneous. The occurrence of the specified event under the specified conditions is the full meaning of the concept. This does not mean that the simultaneity of the two events and the reception of signals are identical. Only the entire situation, operations as well as the specific result they yield, constitutes the meaning of the assertion. Criterion and content can not be separated. If it be objected that the experiment is simply a test for something, that it furnishes data from which the simultaneity of the two events may be inferred, it may be replied that in empirical inference the conclusion itself must always be capable theoretically of empirical verification. Therefore, the inferred simultaneity would have to

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be detectable operationally and "X and Y are simultaneous" would still say that certain operations yield a particular result.

When we pass from relations to objects, the situation becomes more complicated, for here we seem to have many means of verification. At this point, an important distinction must be made between inference and verification. Strictly speaking, no particular experiment verifies the presence of an object. It yields certain data and verifies only propositions concerning them. But the object as distinct from the result of the particular experiment is inferred. The Wilson chamber experiments do not verify the presence of electrons, they enable us to infer them. Other experiments differing from these also serve as bases of inference. Hence, the apparent multiplicity of means of verification is really a multiplicity of bases of inference.

It must now be made clear in what sense it may be said that the existence of objects is inferred. The inference is not a passage from perceived effects or attributes to an underlying cause or substance. Such inference, as in the so-called "causal" theory of perception, is illegitimate. Inference is either logical or empirical. If the former, it is tautological or analytic; if the latter its conclusion must be theoretically capable of experimental verification.[6] The argument to a substance or cause is obviously not tautological. Nor is it empirical, since the conclusion (e.g., the assertion of imperceptible causes of perception) can not be verified by an appeal to facts. It is not an empirical extrapolation since what is extrapolated is admittedly not amenable to ordinary empirical investigation.

The notion of an imperceptible metempirical cause of perceived effects is meaningless. The same can be said of the traditional view of substance. The concept of substance, as Schlick and others among contemporary philosophers have contended, is to be replaced by the concept of law. The statement—"This substance has property x"—is always completely translatable into a scientific formula or law of the form: "If such and such operations are performed, events a, b, c, etc., occur." Substance, in short, becomes a class of so-called attributes and relations.

Thus the apparent paradox brought forth by critics of operationalism disappears. If we distinguish between verification and inference, we see that the multiplicity which they cite is not one of verifications but of bases of inference. This, therefore, does not give rise operationally to an embarrassing multiplicity of meanings for one and the same term. The same object can be inferred from different sets of operations in the sense that from any one of several

[6] The tautological character of logical inference is explicitly assumed. It would carry us too far to defend the position here.

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sets of experimental data (i.e., any one of the various "attributes" of the object) we infer, not verify, the whole range of relevant data (i.e., the class of "attributes" constituting the object). To infer the presence of β-particles from the fog-tracks in the Wilson photographs is to predict that if other specified experiments are performed specified results will be obtained. In contrast with the so-called "causal" inference, this is operationally sound, since what is inferred is always capable of experimental verification.

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BOOK REVIEWS

Culture and Progress. WILSON D. WALLIS. New York: McGraw-Hill Book Company, Inc. 1930. 503 pp.

Dr. Wallis has produced a work of much potential significance, repaying careful review not less from his own, socio-anthropological angle, than from that of students of ethics to whom he acknowledges much, and of psychologists, with whom he shows less evidence of contact. By way of variety the theme of this book is actually that of its title. It is about culture and it is about progress, and these are topics of direct concern to any but a quite provincial interest in the field of mental hygiene. For the "clinical psychologist" who wishes to understand the history of philosophical and sociological thought on some of the broader problems in his own field, this very detachment from his field is not without advantage.

Mental hygiene is by definition a value discipline, and while no great attention was in the beginning paid to this fact, there has during the past few years begun a *rapprochement* between psychiatry and the social sciences that may and in time should lead to a close association. Though hardly meant as such, Dr. Wallis's book contains good material for the bridge. In his opening discussion of the history of culture traits, he has been especially happy in choosing for treatment rather the homely everyday complexes in the immediate culture, than those of the Nicobarese, the Ewe-speaking peoples, or the Tierra del Feugians. The reader unconcerned with cultural anthropology assimilates the facts and questions of trait-diffusion much more readily through the medium of the printing complex or the Christmas complex. Likewise with the coffee, tea, and cocoa complexes; though giving to the first of these three a treatment that the Russian or Englishman might look on as exaggerated (some four pages to coffee and about half a page to tea and cocoa). Whether

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or not one is interested in cultural anthropology, it contributes to an objective view of culture, *scilicet* adjustment modes, to appreciate our indebtedness for tobacco, peaches, strawberries, paper, chocolate, and playing-cards; and to understand such accretions to the Christmas and Easter complexes as the tree, Santa Claus, the reindeer, dyed eggs, and rabbits. A very useful, and to some extent popular book might be written in elaboration of this theme, on the cultural origin of various objects that we take for granted, coal for example; such information has not been assembled in ready form.

Early in the volume, there is considerable criticism of other views on trait diffusion, of Sapir, Wissler, and Kroeber, in regard to single or multiple origins, and questions of relative chronology. While these authorities have every right to be heard in rebuttal, it appears to a non-anthropological reader, that Dr. Wallis's points are often well taken. These passages are the best defense against whatever reproach may attach to the epithet "compilation," though even as such the volume is well off the beaten tracks of Frazer or Sumner, and embodies much material of which the student of mental hygiene at least, is likely to hear for the first time.

After a survey of comparative culture, some 200 pages, along the above lines, not aspiring to comprehensiveness but fairly inculcating, the theme of progress is taken up. There is pointed out the natural tendency of this theme to attract special attention during times like the present, in which established ideals are being challenged. Very properly he addresses himself to the question of the terms in which progress has been formulated by others. Of these the most intelligible tokens are the Utopias and of them he gives a digest more comprehensive than most readers will wish to follow, but turning up much out-of-the-way material, and very useful for reference. It is curious to see the recent fruitful ideas of the Chicago school on crime and culture-conflicts anticipated in Lycurgus' state (p. 245):

> For along with foreigners come new subjects of discourse; new discourses produce new opinions; and from these there necessarily spring new passions and desires, which, like discords in music, would disturb the established government. He, therefore, thought it more expedient for the city to keep out of it corrupt customs and manners, than even to prevent the introduction of a pestilence.

He cites the Utopia of one Foigny (1676) based on possession by the inhabitants of bisexual functions, after the fashion of earthworms. A somewhat similar idea is in Carmichael's "Ariadne,"[1] not referred to by Dr. Wallis, though his references show him a reader of, as well as contributor to, its medium of publication. His comment on the

[1] *Scientific Monthly*, 1926, XXIII, pp. 225–239.

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uniform neglect of esthetic values in the Utopias is worth noting; he finds them conspicuously lacking until the work of H. G. Wells, "drab, with surroundings mean and monotonous, if not sordid." This is what would probably be the general verdict on the Utopias; they would be decidedly unpleasant places for human beings as we know them, to live in. The Utopia of H. G. Wells (whom Dr. Wallis highly praises), is the only one not greatly detached from actual human society and the only one based on anything approaching a realistic human psychology. This is indeed the key to H. G. Wells' influence; he has been effective in symbolizing an exceptional insight and imagination at almost every literary level outside the strictly philosophical.

This psychological detachment of the Utopias illustrates the difficulty that anyone has in altering the accustomed symbolic level of his thinking, and keeping it effective. Witness, e.g., the psychoanalyst or behaviorist trying to be a philosopher, or sociologists and psychiatrists telling how to run each other's disciplines. Nor is the philosopher in much better case when he concretes his ideas in order to clarify them to minds less equipped for thinking *sub specie saeculorum*. "If I cannot carry forests on my back—neither can you crack a nut." From the standpoint of mental hygiene, the field of ethics has always suffered by its lack of contact with the cultural facts in which its principles must operate on a concrete level. Not that the ethical philosopher attempts to build mental hygiene. This is uniformly disclaimed, but he frightens other people from building it on the foundation of his principles. It is when conceptual levels are abandoned and resymbolized as a Utopia that psychological deficiencies appear in special crudity.

Utopias are thus fair game for the satirist and there appear more of the "Inverted" Utopias than is probably realized by other than literary specialists. Familiar ones like Gulliver's Travels or Penguin Island are passed over, but that of Joseph Hall (1607) would seem to merit a wider life than that vouchsafed it by Mencken's adoption of one of its provinces, *Moronia;* another is *Crapula.*

A concluding section is devoted to more general treatment of progress and allied categories. The prevailing view of progress is one expressed in different verbal forms by many Occidental philosophers. It is identified with *Wille zur Macht* and its many verbal equivalents; "progress therefore implies increase in power." Again, later "By overcoming obstacles man has risen; when he ceases to struggle he will be a spirit kindred to the clam, in similar congenial environment," and this struggle is considered in principle superior to the static culture of the savage (p. 401). While this is the dominant viewpoint, there is some question whether it is consistently

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maintained. Progress may be increase in power, but this is not as such a good; thus he appears to differentiate between "progress," not necessarily ethical, and "development" with more ethical connotations (p. 206). Again, progress is figured not in terms of greater energy deployment, but as greater ease in performance of something desired; with sharp distinction between the desired and desirable (p. 426). Again, the "ideals of civilization" are set down as "leisure, security and culture" (p. 386); these are scarcely progress in the above definition. Such inconsistencies are of minor importance to the main function of this book, but they should be ironed out if the author later desires to offer more of a synthesis of his own views on its subject.

The concept of progress is correlative to that of pleasure and of it he says in language that might have been borrowed from Warner Fite, "Pleasure lies in the zest of overcoming" (p. 407). Both remarks are logically questionable, as appears in earlier paragraphs, where in contradiction, "By the test of pleasure, the laggard who basks in the ruins of West Indian plantations lives on a high plane. If pleasure is the test the gammon of savagery is as good as the poetry of civilization, and the former may be more abundant" (p. 388). Yet a third definition is non-psychological. "Pleasure is doing a thing for its own sake" (p. 403). This parallels a very satisfactory definition of play given by Blatz and Bott. Each lays emphasis on the immediacy of the satisfaction; something done *sub specie momenti*.[2]

Another passage that will bear clarification is the allusion to a "Hellenistic Empire" giving the model to the theocracy of Caesar Augustus, as a result of which "Europe accepts the divine right of kings and in theory if not in fact

[2] From the standpoint of the *captator verborum*. There is an acromegalic reading list, but the indexing could be fuller. The reader will not consider the word "robot" as "coined" (p. 26) in the sense of a neologism; it has a perfectly good philological history, cf. Russian *rab* slave, *rabota* work. As it occurs on both pages 63 and 70, absence of Latinistic background seems to account for "centripedal" for "centripetal" rather than typographical lapse; this would be consistent with the citation of Augustine's "*hoc quod amant volunt esse veritatem*" (p. 300), rather than Caesar's terser *libenter homines id quod volunt credunt*. A somewhat graver witness to the same affect appears in the references to suicide "by immolation" (p. 77) with evidence in the context that a specific mode of self-destruction is meant. No other meaning for immolation than "sacrifice" is known to normal usage though there is evidence that it has been used to denote the self-castration practices of the Skoptzi (by the same figurative process that appears to-day in the *double entendre* of such generalizing terms as gland, rest-room, manhood, etc.). This would be at least consistent with the attitude towards sex functions elsewhere in the volume; perhaps also make more intelligible the inhospitable attitude towards psychology. By favor of the Freudian gods, the word's Latin ancestor, *immolare*, originally meant to sprinkle meal on a sacrificial victim. One can afford, in our day and generation, to be less "mealy-mouthed."

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the king is still the head of the Church'' (p. 86). The historical statements on bolshevism (p. 111), ''it took root in Hungary but not in Austria; . . . in Italy and Spain, but not in England, Germany, or France,'' seem hardly justified in the events and echo answers why, in a discussion of communism, from the Sparta of Plutarch to modern Palestine (pp. 373–377), is there no reference to the soviets?

It is perhaps its own proper comment, that while psychology, at least in the person of one psychologist, feels able to make much that is valuable of Dr. Wallis, he makes very little of psychology and that little not too neighborly. He could have said, here is a body of facts relevant to my field; I can not concern myself with what they mean to yours, take them for what you find them worth. This attitude has the respect of both philosopher and specialist. What he does say is (p. 6):

> To search in the laboratories of biology or psychology for the basic factors of social life Wissler significantly compares with ''groping behind the scenes and digging under the stage, disregarding the comedies, tragedies, and dramas in plain sight. . . . We must deal directly with life itself . . . the realities of social science are what people do.

Support is found in an obscurantist remark from Goethe, ''Do not, I pray, look for anything behind phenomena. They are themselves their own lesson.''[3] Heaven and psychoanalysis only know what the author of the closing lines of *Faust* meant by this; ask chemist or astrophysicist where they would be if they took it literally. Again, quoting George A. Dorsey (p. 44), ''knowledge of the natural history of the oyster is useless in predicting the behavior and social organization of ants; the natural history of neither enables us to predict man's behavior.'' The particular sentiment can be left to the mercies of William Morton Wheeler, but less so the underlying attitude that what has no meaning for oneself has no meaning worth having.

> Culture is a group problem, but life and living are individual and are personality problems, and only the individual can solve them. Personal relations, the art of living, the harmony of the soul, as the Greeks called it, which after all involves more than hormones, are persistent problems, and they must be faced by every individual, for in the last event not culture, but man, is the measure of all things [p. 444].

Again, among the frequent citations of Bernard Mandeville (p. 369) ''one of the greatest Reasons why so few People understand themselves, is, that most Writers are always teaching Men what they should be, and hardly ever trouble their Heads with telling them what they really are.'' Here Dr. Wallis is evidently not without

[3] Or yet more pointedly:

> ''Und was sie deinem Geist nicht offenbaren mag
> Das ringst du ihr nicht ab mit Hebeln und mit Schrauben.''

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perception of the problem but he must care little, possibly knows little, about the considerable energies spent in attacking it. Less than one should who works in the same institution with J. E. Anderson, R. M. Elliott, Florence Goodenough, and Donald Paterson. *Prima facie,* comparative studies like the present should remove "cultural prepossession and prejudice" (p. 217) and not transfer them to so near a relative in the family of sciences. On two recent scientific occasions the present writer observed outstanding figures, one an anthropologist, one a sociologist, display the same phenomenon on a level much cruder, perhaps because oral and extemporaneous; so that Dr. Wallis is in good company. Why should there be family jealousy in those quarters particularly? Why is it "cultural prejudice" to kick in the sacred icons of Trobriand Islanders but mete and right to direct such energies at the *geistiger Hosenboden*[4] of the psychologist? A clue is in Dr. Wallis's own above citation of Lycurgus. It is an operation of this principle at the level of the individual. Not long ago a very penetrating writer on anthropology as a museum growth pointed out that it was far easier to elicit interest and support for exhibits of primitives than for the more self-revealing exhibits of our own cultures. That is why the study of personality traits moves faster, if also more erratically, in psychiatry than in psychology; why it is easier to follow a Kroeber or a Malinowski than a Lynd; why it is easier to describe the origins of tobacco, and the history of Utopias, than to seek knowledge of what makes anybody use tobacco, or write Utopias.

> "Be it thy course to busy giddy minds
> With foreign quarrels."

F. L. WELLS.

BOSTON PSYCHOPATHIC HOSPITAL.

Our New Ways of Thinking. GEORGE BOAS. New York: Harper & Bros. 1930. xxi + 194 pp.

"The vital, the creative, the progressive meant nothing to our forefathers; they mean everything to us."[1] Whatever a reader's reaction is to this statement, such will be his reaction to Boas's book.

Will a reader say, "That isn't true; among our Greek forefathers, the vital and creative were not wholly anathema, and among us today are those who would out-Zeno the Eleatics in spurning the mutable"? Or will a reader say, "A sweeping statement, but in broad outline it indicates a genuine tendency"? Criticism of Boas depends largely on whether the reader feels that a philosopher has a right to give in broad outline for popular consumption a positive statement of changing philosophical attitudes.

[4] Dream-speech, cited by Kraepelin.
[1] P. 139.

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The book, though popular, is philosophical. Saying that the progressive means everything for us is not established for Boas by using the language and material of the economic or political go-getter. He sticks to philosophy. From Empedocles' introduction of external forces to Bergson's reassertion of inner vitality, he deals with philosophies as such and with philosophical transitions.

Three main points are offered. First, statistical groups and consequently "norm" thinking tends to overcome the Aristotelian class and substance reasoning. The "norm" is an internal standard to be developed from within instead of a pattern to be imposed from without. Here, it must be said, Boas does not bring out a needed emphasis on a stabilizing power in that norm to compensate for the surrender of the old external control by "fixed" standards. The book is too brief to argue much, but, in the later pages of Part I, the presentation too entirely lapses into the popular to do justice to the depth of the preceding implications. Boas declares he is noting only tendencies without appraising them, but in the post-lude he commits himself in saying that these changes of thought "seem better than what they have supplanted to the greater and more representative part of men."[2]

The second point is mechanism vs. vitalism, or the theory of growth superceding the theory of impact as an account of change. Hence the shift from explanation by "causes" to explanation by "histories." "There is no reason," Boas maintains, "why one should kow-tow to the vital; why is the living inherently any better than the non-living? A demonstration in geometry is as moving as a piece of music but it is not vital. The creative? Creation goes on among the insects; one can create bad things as well as good things; one can create ill or well. As for the progressive, a man who falls off a roof is progressing; is he any the better off for that? Yet so deeply ingrained in us is what Mr. Wyndham Lewis has called the 'time-cult' that such remarks seem frivolous, stupid, and beside the point. We should prefer to be spiders as long as we might at least spin webs, than gods who did nothing but look on. We are like some of the German romanticists who cared nothing for reaching the goal, but everything for seeking it. Why? Because living things reach no end; their function is growth and multiplication. We have taken over the function and idealized it."[3] (Both the style and point of view of the quotation characterize the book.)

The third point involves the views of Tertullian, Duns Scotus, and Nietzsche, with a Catholic reconciliation of the Reason and Will dilemma. The point is that there have emerged voluntaristic

[2] P. 191.

[3] Pp. 139–140.

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philosophies with an Einsteinian operational method, i.e., with meanings revealed through frames of reference and action rather than by eternal contemplation.

The merit of Boas's work is that a significant trend in philosophy is presented popularly without warping philosophy into the patois of science or the patter of business. On the whole there is a minimum of distortion through popular analogy. Any popularizing, however, involves technical inadequacy, and even inaccuracy unless one takes many statements with large grains of salt. This book is adequate to stimulating one to further evaluation of the vitalistic, voluntaristic trend, instead of dismissing that trend as once for all criticized and dispensed with.

Whether we like it or not, Boas insists we shall have to absorb the vocabulary and the basic metaphors of the changing world. "This means a willingness to give up standards in the old sense of the word, to criticize on the basis of the individual rather than the class, to cease mourning over mutability, to find as much esthetic pleasure in internal form as in mechanical composition, to discover rather than to impose values, to believe that action is as noble as contemplation."[4] Such is this attractively published book which the public can read and which students, in order to substantiate or refute the trend indicated, will find suggestive of lines of further reading from the literature of Eleaticism to M. Emile Meyerson, who markedly influences Boas himself.

ELEANOR BISBEE.

UNIVERSITY OF CINCINNATI.

Kant's Conception of God. F. E. ENGLAND. New York: The Dial Press. 1930. Pp. 256.

It is more than a quarter of a century since William James remarked that in his opinion the real advance of modern thinking was rather *round* Kant than *through* him. Yet the volume of Kantian literature was never greater than it is to-day, nor was the discussion of the critical philosophy ever carried on with greater eagerness. Dr. G. Dawes Hicks writes in his foreword to Dr. England's book that the thought of Kant "formed the foundation of all the speculative efforts of the nineteenth century." "And I believe," he goes on, "that for a successful handling of the epistemological problems of the present day, a thorough grasp of the method pursued and the lines of reflexion followed by the critical philosophy is an essential preliminary."

To such an end Dr. England's book makes a distinct contribution. If the author's Kantian scholarship is not on the same scale as that of the great German commentators, it gives evidence of a

[4] P. 191.

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sufficient number of years of accurate and comprehensive study. The book is a learned one in both substance and style. The argument leads us into several parts of the Kantian system which are usually regarded as "dead wood", and which the most brilliant pen could hardly bring back to very vigorous life. Dr. England does not aim at brilliance, nor does he attempt to enlist the interest of any but the most serious-minded historical students. Perhaps the book would not have lost anything by being somewhat less severe in its demands on the attention.

The author has conceived his task genetically. What he offers us is the story of Kant's metaphysical development, with special regard to the conception of God, from his earliest to his latest writings. The offering will be gratefully received, for (if we except Caird's not very usable chapters) the thing has never before been attempted in our language; while even in German there is less satisfactory literature on this aspect of Kant's development than on some others (such as the development of his ethical theory). In an appendix Dr. England has printed an English translation, seemingly very well done, of the *Nova Dilucidatio* of 1755—an early treatise in which we can watch Kant chafing at the tethers of the Leibnitzo-Wolffian tradition in which he had been brought up. All English-speaking students will be grateful for this translation.

Yet Dr. England is no mere historian. On the contrary his book is essentially an argument—an argument in criticism of certain of Kant's ideas. Moreover his guiding interest is the metaphysical one. The reader is likely to be struck by the fact that whereas Kant's own interest in the conception of God is a moral rather than a metaphysical (or cosmological or theoretical) one, it is on the metaphysical aspects of Kant's conception that Dr. England concentrates his attention. His chapter on "The Facts of the Moral Life" is brief and perfunctory; and very little is said of the *Religion innerhalb der Grenzen der blossen Vernunft.* In such respects this book reads very differently, for example, from Professor Webb's *Kant's Philosophy of Religion.*

Whether Dr. England is right in his chief contentions we can not here undertake to decide. But we must protest against the assertion, made in the course of his onslaught on the Kantian conception of an intuitive divine mind, that "if change be real anywhere in the universe, it seems impossible to maintain that the whole is immutable" (p. 190). "The notion of time and change," Dr. England goes on to say, "as being contained within a timeless and changeless whole is one which seems to help but little in the interpretation of reality, and really amounts to little more than a mere *vox et praeterea nihil.*" Dr. England mentions the name of Bosan-

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quet as a representative of this doctrine, but it is a few thousand years older than he. Were we not taught in our undergraduate days that it was by means of this doctrine that Aristotle harmonized the rival claims of Parmenides and Heraclitus? And from then onwards it has been part of the great tradition in western philosophy. It may not be a true doctrine. But it is certainly not a doctrine that can be dismissed in a few airy phrases. If Dr. England has a real case against it, he has indeed a weighty subject for another and far more arduous piece of writing; but he says nothing here that would give any indication of any strength in his hand. Meanwhile let us thank Dr. England very cordially for what he has already contributed to our knowledge and enlightenment.

JOHN BAILLIE.

UNION THEOLOGICAL SEMINARY.

JOURNALS AND NEW BOOKS

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Baillie, J. B.: Hegel's The Phenomenology of Mind. Translated with an Introduction and Notes. Revised 2d Edition. (The Library of Philosophy.) New York: Macmillan Co. 1931. 814 pp. $8.00.

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Zeller, Eduard: Outlines of the History of Greek Philosophy. Thirteenth Edition, revised by Wilhelm Nestle, and translated by L. R. Palmer. (International Library of Psychology, Philosophy, and Scientific Method.) New York: Harcourt Brace & Co. 1931. London: Kegan Paul, Trench, Trubner & Co., Ltd. xv + 324 pp. $5.00.

NOTES AND NEWS

The first volume of the *Collected Papers of Charles Sanders Peirce,* scientist, logician, and founder of pragmatism, has just been published by the Harvard University Press. This volume is entitled "The Principles of Philosophy" and is composed mainly of papers previously unpublished. It contains his system in outline and his more important papers on the methods and classification of the sciences, phenomenology or the doctrine of the categories, ethics, and esthetics. It will be sold at $4.50. The entire works will consist of about ten volumes; those subscribing to all the volumes will be entitled to a discount of 20%. The second volume dealing with traditional logic, signs, methods of discovery, induction, and probability will follow very shortly. Nearly all the members of the Department of Philosophy at Harvard, as well as other friends of Peirce have devoted much time to the manuscripts of these papers. The final work of arranging the papers and preparing them for the press has been done by Dr. Charles Hartshorne and Dr. Paul Weiss.

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TYPES OF PHYSICAL DETERMINATION AND THE ACTIVITIES OF LIVING ORGANISMS

IT is now widely recognized that the modern scientific view of nature—the experienced externality which physical analysis resolves finally into electronic systems (matter) and radiation (with their interactions)—must be taken into account in the philosophical as well as in the purely scientific syntheses. The question of how far the graphic and mathematical models of present-day physics are to be regarded as provisional, and how far they give a true insight into the final constitution of natural reality, is not an easy one to answer. But it seems justified to assume that those factors which appear as fundamental constants in all natural processes, such as the velocity of light, the quantum constant, the electrostatic and gravitational constants, are true indicia of certain inherent and permanent features of the underlying reality. The external or physical aspects of nature would then furnish at least some clue to its inner or metaphysical constitution, although, as abstractions from an experience having many other aspects, they are not in themselves sufficient for a complete philosophical synthesis. A similar conclusion applies to biology; as an objective science it is physical; in the last analysis living organisms appear as constituted from the same ultimate elements (electrical units determined in their interaction by quantum transfers) as non-living systems. The biological systems are, however, peculiar among natural systems in certain very definite respects,—in their physico-chemical complexity,[1] their automatic integration of structure and activity, their self-preservative property, their maintenance through continual interchange with their surroundings. An additional and highly significant feature is the fact that each biological individual, especially of the higher types, shows typically a certain spontaneity or unpredictability of behavior not entirely referable to known factors present in the environment or in the organism itself. Some unanalyzed factor seems present which expresses itself in the unforeseen variations of individual behavior, and apparently also in the variability of heritable organization which has been regarded since Darwin as furnishing the

[1] In its physical constitution living matter exhibits a maximum of diversification within a minimum of volume. This feature is also characteristic of the chief biological compounds, the proteins which are the bearers of specificity.

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material for evolution. Broadly speaking, the constancy of inorganic chemical compounds and reactions presents a definite contrast with the spontaneity or innate variability of living beings. The distinction is not an absolute one, since there is evolution in inorganic as well as in living nature, but it suggests the existence of two quite distinct types of causal determination in physical nature. Proceeding on such an hypothesis, we may identify the first of these in the familiar type of causation exemplified in large-scale inorganic processes, which show a definite and quantitative regularity now recognized as based on the general laws of thermodynamics. The second type is less readily characterized, but may be regarded as exhibiting itself (in part) in the variability, autonomy, and other more special features of vital activity; expressed briefly and antithetically, its source would appear to be *internal* rather than external.[1a] It seems reasonable to assume that the contrasted tendencies of living and lifeless matter have their counterpart in some fundamental difference in their dominant factors of determination—however clearly we may recognize the dependence of life on a non-living environment and the participation of purely physico-chemical components in the vital process itself.

This contrast appeals with special force to the scientific biologist, concerned as he usually is with the effort to analyze vital activities into simpler physico-chemical processes. Although as a rule he does not commit himself to a sharp distinction between physico-chemical and vital modes of causation, his efforts to refer the latter exclusively to the former have not met with unqualified success. The suspicion that the effort is misguided often intrudes, even though it is generally agreed that vitalistic hypotheses are scientifically inadmissible, since they appear to involve what Jennings calls experimental indeterminism [2] and so infringe the scientific rule of constancy. Nevertheless, none of the facts of living beings can be ignored by science; and it is possible to hold that the essential differences between living and non-living systems are more clearly defined in the higher than in the lower forms of life, in the latter of which the methods of physico-chemical analysis have, on the whole, been most successful. When we examine without prepossession the factors determining normal human behavior, and preferably its higher (e.g., ethical or creative) manifestations, we can not fail to be struck by the difference between those actions which are ex-

[1a] In a recent interesting paper ("Causal Determination; its Nature and Types," *Journal of Philosophical Studies*, Vol. V, 1930, p. 545) J. E. Turner also emphasizes the contrast between external and internal types of causation and discusses the possible rôle of the latter in vital phenomena. *Cf.* also my earlier paper in *Science*, Vol. 66 (1927), p. 139.

[2] *Cf.* H. S. Jennings, "Mechanism and Vitalism," *Philosophical Review*, Vol. XXVII (1918), p. 577.

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ternally compelled or enforced by the physical needs of the body, and those which are determined—or at least seem to our intuition to be determined—from within, especially voluntary action. There seems to be an element of irreducibility in this difference, suggesting the existence of some radical disparity between the externally determined and in the internally determined types of action; and we are led to seek in physical nature for evidence of a distinction or dualism of a similar kind.

Recently the element of unpredictability in the single electron event, i.e., non-specifiability of momentum or position within a range fixed by the quantum constant (the principle of indeterminacy of Heisenberg), has often been pointed to as evidence of the existence of an inner freedom or non-determination in single atomic processes.[3] To support belief in freedom of the will on such grounds is, however, scarcely justified (whatever other grounds there may be for this belief); all that the physical evidence shows is that the conditions of determination are different in the intra-atomic events which determine the transfer of physical influence between single atomic centers from what they are in large-scale or mechanical events. Stability, of whatever kind, implies determination; without determination there would be chaos, which is far from being the fact; and at present physical investigation is actively engaged in defining in exact terms—very different from the older mechanical models, it is true—the constants of the experimentally accessible phenomena. There is no evidence of exception here to the principle of the interdependence of stability and change which runs through all natural existence; and uniformly acting determinative factors (natural constants) would appear, simply as an inference from experiment, to be as much a part of quantum events as of any other natural processes.

Nevertheless, a sharp distinction is drawn in practice between the two types of physical determination relating respectively to events on the sub-atomic or electronic scale and to the large-scale events of ordinary perception. The distinction is that between quantum mechanics and large-scale mechanics; and we have the problem of the manner in which the small-scale or electronic events, conditioned by quantum processes, are related to or determinative of the large-scale events to which the thermodynamic laws apply. In the latter case we are dealing with collective effects, and apparently one solution of problems of this type is furnished by the methods of statistical mechanics. But other modes of transition from the intra-atomic to the large-scale types of causation are possible; and there is reason to believe that in living organisms—with

[3] *Cf.* Eddington, Jeans, and other writers on the borderline between science and philosophy.

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their protoplasmic organization constructed on the microscopic or ultra-microscopic scale—the interaction between the two is of a more special kind, based ultimately on certain features of electro-chemical action. Thus the physiological evidence shows that in higher animals motor action is mainly controlled by the transmission of waves of electro-chemical change along the structural surfaces of the protoplasmic units (nerves and other conducting elements). Typically the origination of these waves is in the minute structural elements of the central nervous system or its receptors. The energy required to initiate a transmitted disturbance of this kind may be very small; thus only a few quanta of radiant energy (possibly not more than one for each retinal element involved) are sufficient to excite a visual sensation and so elicit an extensive physiological response.[3a] What is especially interesting is that the spreading and branching type of distribution characteristic of this transmission involves in effect an amplification of the initiating disturbance, which may thus activate a large physiological field having a highly special kind of activity and interconnection. A local change occurring in a minute, conceivably even ultra-microscopic structural unit, may thus express or register its special peculiarities (e.g., of rhythm, amplitude, directive action) in the dependent large-scale physiological process. In this manner events originating under the conditions peculiar to individual atoms may have a determinative influence on the large-scale of organic action.[4] It is recognized that, the *visible* activities of living beings, since they are, physically considered, large-scale phenomena, conform to the usual conditions of classical physics, i.e., their mechanical, chemical, energetic, and other characters show no conflict with the thermodynamic or other laws characteristic of such phenomena. Recent research has amply shown that physical chemistry applies to living organisms with the same exactitude as to non-living systems. But there is equally conclusive evidence that the special or detailed character of vital action is to be referred ultimately to the fineness of structural differentiation characteristic of living matter.[5] Transmission of influence from events occurring in minute areas of organized structure where the conditions of determination are of the small-scale or intra-atomic type must be recognized as an essential, perhaps the

[3a] Excitation by a single quantum would be excitation by change in a single molecule, according to Einstein's law of photochemical equivalence.

[4] For a fuller discussion of this possibility *cf.* my paper, "Physical Indeterminism and Vital Action," *Science*, Vol. 66 (1927), p. 139.

[5] Thus the estimated maximum diameter of the *genes*, the interchangeable chromosomal units in the nucleus of a germ cell, which, according to the very conclusive evidence of experimental genetics, determine the phenomena of Mendelian inheritance, is of the order of 50$\mu\mu$ (millionths of a millimeter).

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chief, distinguishing feature of vital processes. An important part of vital control is, therefore, to be assigned to such events.

In the present paper I propose to examine briefly some general implications of the hypothesis that the special directive or controlling factors in living organisms (those which determine their characteristic individuality of action) have their origin in ultramicroscopic or intra-atomic events where the general laws of energetics (now recognized as statistical in their origin) do not apply. It is to be emphasized that in the type of determination thus presumed there is no question of an infringement of large-scale conditions; it is simply that the conditions and processes in the small-scale phenomena have laws or constants of a different kind. In these processes the factors of individual or internal (intra-atomic), as distinguished from external, determination assume chief importance. These laws may be characterized as the laws of individual or internally determined atomic action,[6] and are here contrasted with these of large-scale action, in which the course of events is controlled by the collective conditions defined by the general laws of thermodynamics.

The essential nature of the distinction between an internally determined and an externally determined atomic action may be illustrated in a general manner as follows. Consider a single atomic unit, some indivisible or permanent center of physical existence or action, such as an electron. Such a unit is a store of energy (i.e., actual or potential action); physically this means that under circumstances the unit may transfer a portion of its energy to some other unit (or units) in its environment and so transmit influence or activity. Any such single transmission has a directive character, since it occurs between definite units having definite position. If the unit be conceived as non-composite, i.e., as having no internal differentiation of any kind, such a transmitted action, if determined solely from within, could equally well be in *any* direction. I.e., no *internal* impulse to action would necessarily act in any one direction rather than another, since such a directive action would imply the existence of one part acting on another along definite lines of contact or interconnection (vector lines),[6a] and such parts are absent. We may thus conceive of the possibility of an internally originating

[6] It is to be noted again that no absolute distinction is implied here. In any single natural event, we may distinguish between *internal* determinative factors, those peculiar to the entity undergoing change, and *external* factors, those which affect the action of the entity by impingement or entrance from outside. For example, a chlorine atom behaves differently in the presence of a hydrogen atom from a nitrogen atom. And the same is true of the most highly complex processes, such as organic inheritance, where the distinction between external and internal determinative factors is recognized by all biologists.

[6a] That is, according to the classical laws of motion.

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directive action which is quite independent of the classical laws of motion or energy. The latter, it will be remembered, relate solely to the behavior of systems consisting of many atomic units which interact with one another. If we consider a single atom uninfluenced by others (i.e., from outside), it seems clear that a quantum transfer *from* this atom might be in any direction (i.e., *to* any other atom) without infringement of these laws.[7] Such an illustration indicates the nature of the contrast to which attention is directed in this paragraph. According to classical principles (derived, historically, from the study of large-scale phenomena) the complete determination of the direction of a physical action would be possible only in systems having parts which interact along lines of union, contact, or other form of connection, i.e., transmission of a spatially definite or canalized type would be required. Directive action in the large-scale world has experimentally just these characters—which, however, are apparently not to be attributed (at least in the same sense) to the single intra-atomic events.

Is it legitimate to conclude that determinism of the strict physical type applies only to effects depending on the *interaction* between atomic units and not to the internally determined action of the units themselves? Does the experimental evidence justify such a conclusion? The question can not be answered definitely on the basis of physical evidence alone. The fact to be emphasized, however, is that intra-atomic action can be influenced experimentally (i.e., from outside) only to a limited degree.[8] All the physical evidence indicates that the intra-atomic stores of energy are of a vastly greater order of magnitude than the energy which is transferred in the ordinary physical events dependent on interaction between atoms. This would imply that each atomic unit has an inner activity (= energy) which is very largely, *although not completely,* independent of outside influence, in addition to an experimentally demonstrable activity which is wholly determined by outside influence—i.e., by interatomic action associated with the interchange of energy quanta.[9] We may then describe the atomic unit

[7] A concrete illustration of such conditions would be a radium atom, the rate and character of whose disintegration are determined by internal (intra-atomic) factors, which are apparently not influenceable by external conditions (i.e., experimentally).

[8] Examples of such influence are seen in radiation and the Zeeman effect; these effects leave the atomic system intact. There is also the case of atomic disintegration through bombardment with alpha particles (Rutherford).

[9] Just how physical atomism is to be related to the monadic conceptions of general philosophy is a difficult problem. It may be suggested, however, that if the atom is to be regarded as the physical sign or representative of a monad (of any type), the latter could scarcely be "windowless" in the Leibnitzian sense, but its isolation would be incomplete. Since transmission between atomic units is physically a fact, although involving only a minute portion

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as having, first, an internally determined or autonomic activity and, second, an externally determined activity depending upon the reception of quanta from other units. It is interesting, if somewhat disconcerting, to note that activity of the former type (if purely internal or self-contained) would be closed to physical (external) observation, since any such observation involves an effect on the sense organs, i.e., a transfer of influence between atomic systems.[9a]

To summarize: determinism of the traditional physical type (i.e., experimentally demonstrable or externally observable) would, according to this view, apply mainly or exclusively to the interaction *between* atomic units, or to mass effects depending on such interaction. Each atomic unit would then have an autonomous or internally conditioned activity of its own, as well as an activity determined by external influence. The former type of activity would, if it could be observed, appear as the free[10] (in the sense of externally undetermined) component of the action under consideration, the latter as the determined component. Under circumstances (not physically defined at present) the former might eventuate in an externally effective action. The initiation of the action would then be of the former ("free") type; the succeeding course of the action, as physically observable, of the latter (determined) type. All actions of the latter type would, viewed externally, have the definite or determinate character of large-scale physical action, because of the fixed conditions controlling the interaction and transfer of energy between atomic units. In the summation of many such single atomic actions, as in physical effects on the normal scale of perception, the general statistical laws of thermodynamics would hold. These latter constitute the conditions which make possible regularity or fixed determination of action on the large scale. As is well recognized in physics, the stability of the general external physical conditions, such as temperature, pressure, potential, depend on these conditions, from which therefore are derived the constancy

of the inner energy of the unit, the idea of complete monadic isolation and its corollary, the principle of preëstablished harmony, would seem to be inconsistent with the modern scientific view of nature. In fact, these and other elements of Leibnitz's doctrine (derivable largely from the historical conditions under which he wrote) require amendment in the light of modern knowledge. What is important is that the intrinsic or inalienable energy (= reality) of the physical monad or atom is recognized by physics as very large in comparison with that which participates in interatomic action. A relation can be seen here to the hypothetical character of closed or self-contained individuality ascribed to the philosophical monad.

[9a] Compare Bradley: "the world we see is probably a very small part of the reality" (*Appearance and Reality*, p. 199).

[10] I use the term "free" simply to point a contrast between the two types of determinism (which I designate below as primary and secondary), and not at all to imply an absence of determination of some kind.

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and dependability (i.e., the definite, regular, and repetitive features) of the observed events, processes, and cycles of external nature.

The Heisenberg principle of indeterminacy states simply that in the single electron event position and velocity are not simultaneously specifiable. This follows from the discontinuous or packet-like character of the quantum transfer and the physical conditions of observation. Yet something corresponding to motion has to be assumed, and motion always means spatial transfer of mass or energy in a definite direction.[11] Experimentally, however, a quantum transfer does exhibit a directive character, subject to at least a certain measure of external influence. This is seen, for example, in the interaction of radiation and electrons; thus the electron tracks shown by the Wilson cloud method exhibit a definite trend in a direction which is related to the direction of incidence of the radiation.[12] The determination of the single atomic event by the external condition is, however, not complete (an element of probability enters), although in the summation of many such events, i.e., in large-scale or mass effects, the determinative feature becomes the controlling one. The existence of such directive behavior in the single unit is of fundamental importance, and may be regarded as evidence of a certain inner differentiation in the electron; this is presumably provided for, theoretically, in the vibratory or wave conception of electronic constitution.[12a]

We may now briefly consider certain other more general characteristics of external nature which also indicate the existence of an internal as distinguished from an external type of determination. Of first importance—since they are the conditions of all large-scale action—are the laws governing the behavior of energy in the external world, especially the principle of dissipation known as the second law of thermodynamics. In its simplest aspect, this principle is best illustrated by the behavior of gases. Gases are[13] assemblages of numerous minute non-coherent particles in rapid random motion. In such an assemblage, conceived as isolated in space, an indefinite degree of *divergent* motion is possible, but not of convergent motion,

[11] *Cf.* A. N. Whitehead: "Direction is not concerned with what is merely at that point" (*Principles of Natural Knowledge,* p. 24); i.e., it requires reference to external conditions.

[12] For a brief account *cf.* the review by A. H. Compton, "The Corpuscular Properties of Light," *Physical Review Supplement,* Vol. 1 (1929), p. 74. A fuller treatment of the subject is contained in the same author's book, *X-rays and Electrons,* New York, Van Nostrand Co., 1926.

[12a] Here, as in other departments of science, the problem is to make the conceptualization as consistent as possible (or practicable) with the experimental fact, a problem which must be left to the specialists in this field.

[13] "Are," i.e., behave experimentally as if they were; the particles are conceived as solid, i.e., as holding their individuality or resisting interpenetration.

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simply because any molecule approaching a central region inevitably encounters other molecules, i.e., space which is already occupied. Hence those impacts whose resultants are centrally directed have on the whole less effect in causing motion than those with peripherally directed resultants. Motion in the one direction encounters steadily increasing resistance, in the other steadily decreasing resistance. The distinction between *inside* and *outside,* corresponding to that between occupied and unoccupied space, thus lies at the basis of the thermal course of events and determines in the long run a general flow of energy toward the external regions of the cosmos.[14] What applies to the kinetic or mechanical transfer of energy—the kind of interatomic influence assumed in the classical gas model—applies ultimately also to the transfers of energy in other large-scale processes, since the thermal moment is always present in molecular events. The tendency just described is illustrative of a general cosmic tendency which automatically would proceed (assuming the universality of the laws of energy) until the whole universe is in thermal equilibrium (the so-called "heat-death" of Clausius). The unidirectional character of the time-flow in conscious experience is in fact referred by many physicists to this condition; i.e., time as experienced (Bergson's duration) is ultimately an expression of the existence of the second law;[15] the irreversibility of the general course of events (a correlate of the irreversibility of time) is evidently a corollary of the irreversibility of the general thermal process.

Hence arises the impression of impossibility which is so strong when we witness a reversed cinema reel, since on a sufficiently magnified scale such a picture would show the ultimate particles of matter as moving spontaneously against resistance, i.e., toward occupied instead of unoccupied space,—very much as if the mutual repulsion of the electrons *decreased* (instead of increasing) with the square of their distance apart. Such behavior is the reverse of our normal experience of nature.[15a]

[14] Of course the outflow of energy from any one local region may be compensated or over-compensated by inflow from some other (or others) external to it; i.e., there may be thermal equilibrium, or the first region may increase its energy at the expense of the others. What the theory asserts is that when all the interacting regions are considered together, the total effect is decrease of available and increase of unavailable energy (i.e., of entropy).

[15] *Cf.* W. S. Franklin, "The Quantum Puzzle and Time," *Science,* Vol. 60 (1924), p. 258; e.g., "the law of increase of entropy and our intuition of time unquestionably grow out of the same condition in nature . . ." (p. 260); also, "Entropy and Time," *Physical Review,* Vol. 30 (1910), p. 776; also G. N. Lewis, *The Anatomy of Science,* Yale University Press, 1926; and *Science,* Vol. 71 (1930), p. 569 ("The Symmetry of Time in Physics"); Norman Campbell, "Time and Chance," *Philosophical Magazine,* 1926, Series 7, Vol. 1, p. 1106; Eddington, *Nature of the Physical World,* p. 68, and others.

[15a] The assumption, sometimes made in physics, that the fundamental con-

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Yet the centralization of energy in innumerable spatially discrete atomic units is one of the most firmly based of experimental facts. Atomism is fundamental in the structure of nature. This condition exists—whatever its origin is or may have been. Physical science shows a vast surplus of energy concentrated in the innumerable localized units (ultimately positive and negative electrons) which form the elementary components of matter. The radiant energy which proceeds outward from such units and the energy expressing itself in the other observable forms of physical change are relatively a very small part of the total energy of the cosmos.[16] Thermodynamics, while describing accurately the conditions of transfer of energy between material systems, has no reference to the problem of how energy came to be thus centralized in the atomic units. Its deductions have reference to a world already given as having an atomic constitution. According to the thermodynamic conception the prevailing direction of change in natural processes is opposed to the local concentration of energy, i.e., the universal rule is the dissipation described by the second law. Observation shows, however, that the energy of radiation always originates in intra-atomic changes,—e.g., according to the Bohr model, in the transition from one stationary state to another; atomic disintegration or transmutation is another recognized source. On the present physical view, therefore, the intra-atomic energy represents the ultimate source of the energy appearing in normal physical processes. Apparently, the only physically adequate source of solar radiation (from which comes most of the energy of terrestrial events) is the transformation of intra-atomic energy, occurring concomitantly with atomic degradation and loss of mass by radiation.[17] Thus the

ditions of motion or of energy-transfer in nature are *symmetrical* (involving the conception of a symmetrical instead of unidirectional "time") must be regarded as purely ideal in character. Such conditions can not exist in actual nature, because of the inevitable asymmetry from central to peripheral. I.e., convergence, but not divergence, of energy is restricted in the manner just indicated. It may be noted also that the recent conception of the "expanding universe" (a deduction from the uniform and large Doppler shift in the radiation from distant star-systems) implies also a unidirectional time-flow. A generally divergent flow of matter in the cosmos would seem to be indicated—assuming the validity of the physical interpretation.

[16] Compare the remarks of the Mathematical Physicist in J. W. N. Sullivan's interesting book, *Three Men Discuss Relativity*, New York, 1926, p. 75.

[17] Similarly, the general cosmic radiation of interstellar space is regarded by Millikan as having its chief origin possibly from the formation of helium from hydrogen, a process involving loss of mass (*Cf.* his recent address in *Science*, Vol. 73 (1931), p. 1.) Jeans supposes an occasional annihilation of atoms by the union of positive and negative electrons, with a corresponding dissipation of short-wave radiation (*Cf. Nature*, Vol. 128, 1931, p. 103).

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continual loss of mass by the sun to surrounding space is estimated as approximately 4,000,000 tons per second.[18]

When we consider the Einsteinian identification of matter with energy, together with the recognized fact that radiant energy originates from changes in electronic systems, the inference seems unavoidable that energy in some way must enter, or has entered, the cosmos at the innumerable discrete atomic points, and spreads outward from these. In so doing, it manifests itself in the various forms of physical change. The basic determinative factor or agency in nature would thus be one which expresses (or has expressed) itself in the centralization of energy or action in the spatially discrete and mutually exclusive units or atomic foci which by their aggregation form the observed material systems. There is at present no scientific account of any such factor; i.e., no physical process is known which can be conceived as assembling and concentrating from some outside source the vast stores of intra-atomic energy. Similarly, we have no basis for an answer to the question whether this entrance of energy into the cosmos at the atomic points is a continuous process, or whether it is to be conceived as having happened once for all at some definite time in the past. Could there have been a certain period of creation—conceivably assignable by some process of extrapolation, based on estimates of the magnitude and rate of change of the present entropy of the universe—at which the universe started? Those who hold that a heat-death is inevitable (like Sir James Jeans) might well make such a calculation.[19] Or is energy entering the universe more or less continually from some extraneous source which in some unknown way asserts or manifests itself at the atomic points? The latter conception would seem to conflict with the law of conservation and, in fact, leads to difficulties. An alternative view would be that the energy dissipated or dispersed in radiation is, so to speak, re-collected and enters physical nature again at the atomic points. A re-entrant distribution of energy would be implied by such an hypothesis, i.e., something analogous to a continuous circulation of some kind. In a universe having a multi-dimensional constitution (in the geometric sense) such a process might be possible. The theory that the universe is inevitably approaching a state of uniform potential, with consequent absence of change, has always had in it an element of the incredible; it is, in fact, an example of extrapolation from the data of thermodynamics considered abstractly or in isolation from other data. The

[18] *Cf. e.g.*, H. Jeffreys, *The Future of the Earth*, New York, 1929; Jeans, *The Mysterious Universe.*

[19] *Cf.* Eddington's recent address before the Mathematical Association, "The End of the World from the Standpoint of Mathematical Physics;" *Nature*, Vol. 127 (1931), p. 447.

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alternative view that a balance is somehow maintained in the cosmos between the dissipation and the re-entry of energy would seem on general grounds to be more credible; but it has, so far as I know, no definite scientific basis at present.[19a]

If we regard the centralized or atomic energy of the cosmos as having had (or as having) some extraneous source, we seem compelled to recognize the existence of two distinct types of physical determination in nature. One of these is internally directed, issuing toward or into the numerous spatially discrete local regions or focal points which appear to science as atoms or electrons. For purposes of designation, we may characterize this type as *primary*. The other, externally directed, is dependent on the transfer of quanta between such foci and exhibits itself ultimately in the physical causation of everyday experience. The latter type appears as the derivative of the former (i.e., as *secondary*) and manifests itself in the various events to which the classical laws of energy apply. Until recent times scientific investigation has had reference almost exclusively to this type of determination. Little is known as to the physical conditions governing the transitions between the two types. That such conditions exist and have constant or scientifically definable characteristics may be assumed both from experimental evidence and on general philosophical grounds. As already remarked, the problem is not solved by characterizing certain events (single quantum events) as indeterminate, free or arbitrary—the snare of verbalism is to be avoided—but must be recognized as one to be approached like other scientific problems by methods of systematic investigation and criticism.

With regard to the special problems of biology, the question is: What part, if any, can be assigned to the primary or internally originating factors in the determination of the activities of the living organism? Only a tentative answer can be given at present. It is sufficient to recognize that of the great reservoir of energy present in the cosmos by far the greater part is intra-atomic. Just how this energy asserts itself in the behavior of the individual atomic systems is the essential problem to be solved. I have already referred to the hypothesis that single intra-atomic events may conceivably govern large-scale events in living organisms by virtue of the properties of transmission combined with amplification which are so characteristic of irritable living matter. The control of the initiatory intra-atomic events would, in this hypothesis, appear to be an essential condition of vital control; i.e., the factors of intra-

[19a] In a paper read last June before the American Association for the Advancement of Science, Professor Richard Tolman discusses such possibilities from the standpoint of relativity theory. For a brief summary *cf. Science*, June 26, 1931, Supplement, p. 10.

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atomic determination would become factors in vital activity. The question is how we are to conceive these intra-atomic controlling factors. Nothing is to be gained by ignoring or denying their existence. If we identify reality [20] with energy (activity) we must conclude that the portion of reality which can be externally observed, i.e., which is capable of affecting the sense organs at any one time, is only a small fraction of the whole. However valuable the methods of classical physics and chemistry may be in physiology, they require to be supplemented by other methods which will take into account the other types of determination now recognized as occurring in nature. I am confident that the present situation in reference to the fundamental theoretical problems of biology (just now largely one of impasse) [21] will clarify itself with the progress of investigation. As an analogy we have only to recall the recent transformation in the theory of the origin of solar and stellar energy. Just as the recognition of the new sources of physical determination in the intra-atomic processes has brought increased consistency and scope to the science of astro-physics and has effectually supplemented the older contraction theory of Helmholtz and Kelvin, so we may look for further expansion, based largely on the recent transformation in physics, in the fundamental conceptions of biology.[22] It is possible also that on the theoretical side biological studies may assume a more philosophical character, i.e., may have a closer reference to other fields of experience than the objectively observable processes of organisms. Light may be thrown on the fundamental problems by a correlation or synthesis of the data of psychology with those of the objective biological sciences. In any case, rigor in the determination of fact and in criticism ("the soul of science") must be the mainstay of all such investigation.

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[20] I.e., physical reality; as to the larger question of reality in general nothing is said here. It may be assumed, however, that a moment of physical energy (actual or potential physical activity) is present in whatever is real. To identify a reality completely with any one of its abstracted components is, of course, inadmissible.

[21] *Cf.* for example, the recent criticisms of J. H. Woodger (*Biological Principles,* New York, 1929); E. Rignano (many papers in *Scientia,* of which the most recent, p. 122, November, 1929, is an epitome); Joseph Needham (*The Sceptical Biologist,* New York, 1930).

[22] I am simply indicating that there may be within the single atom reservoirs of biological determination, which it will be the problem of future science to define.

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ARTIST, PHILOSOPHER, AND THE IDEAL SOCIETY

WHEN the idea of this discussion first came to me, it took the form of a contrast between two ways of thinking—the artist's and the philosopher's. I had just finished for the first time Romain Rolland's great novel of the romantic spirit, *Jean-Christophe*. Something in it, perhaps Rolland's profound social idealism, suggested a re-reading of *The Republic*. I can not say what led me to connect the social philosophies of the two books, nor shall I attempt to justify the comparison.

And yet there is something fundamentally alike in the two men —Plato and Rolland. Both have a tremendous passion for righteous society. Both desire a better world for themselves and their fellows. Both look eagerly forward to the creation of some more perfect community. Each succeeds—Plato explicitly, Rolland by the subtle devices of the artist—in projecting a vision of what that ideal society is to be. Though Plato conceives it as an embodiment of Justice, and Rolland as an embodiment of Universal Brotherhood; though life in it is more creative and less contemplative for Rolland than for Plato; the differences, fundamental as they may be, need not detain us here. It is enough that each found his vision straying from the fragmentary and imperfect social order of his own day to an ideal community that might be. That makes them brother seers.

But from this point their thought diverges. When it comes to the meaning that shall be attached to an existing social order in the light of its relation to that which is ideal, philosopher and artist look with different eyes. The one observes the city-states of his day and finds them but gauche and imperfect replicas of the ideal, distorted by alien and irrational elements. The other looks upon Europe of the nineteenth century and discovers unique and significant values, even in those features which he hates and wishes most to obliterate. For the one the projected ideal is the source of societal meanings and values and the very criterion by which existing societies are to be judged, even though its achievement in the actual may be forever impossible. For the other, the ideal is a shibboleth of loyalty, a plan for which to work, a dream which in its realization will bring new problems and but partially free mankind from the drags and hindrances that encumber the present order. There is meat enough in this contrast for much profitable chewing of a philosophical sort. For the explanation of this difference lies deeper than time or place or circumstance. Undoubtedly the France of Romain Rolland was in certain definite respects a better (or a worse) kind of society than Athens or Syracuse. And these concrete differences are echoed in the two men, in

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the problems which they envisaged and in the solutions they proposed. But by and large the factors which disrupted Athenian and late nineteenth-century civilizations were essentially the same. Plato and Rolland faced problems in social theory that were largely identical. We must look beneath the historical occasion for the underlying method of analysis used by each, if we are to understand their divergent interpretations of the relation between actual communities and the ideal.

Let us take the philosopher first. The path is familiar and dear. After the courteous preliminaries of philosophic discourse are satisfied and the tortuous path to the main problem is traversed, the exposition begins when Plato lays down a major premise, a first principle so axiomatic with him that it scarcely needed proof. The State exists, and can exist only when every citizen does that and only that for which he is best fitted. This premise, in turn, rests upon a deep-seated bias, Plato's ingrained preference for the harmoniously ordered and intelligent life. The supremacy of this way of life above all others is taken for granted, in the primitive and absolute sense of the phrase. That is, the life of reason is justified by Plato only in terms and arguments that tacitly assume its own supreme value.

Upon this basis the ideal State is constructed by the process of syllogistic deduction. The argument runs from premise and premise to conclusion in descending series until the outlines of the ideal community emerge and begin to take on the flesh and blood of actual civic life. A city rises into being before our eyes; citizens are created; institutions are set in motion; the State is a going concern. Everything develops according to the rules of the formal processes. Practical details spring from abstract premises and multiply as if by magic. If our State is to be such and such, it must have so and so: workers, cobblers, husbandmen, merchants, guardians, legislators. It must carry on such and such: education, diplomacy, propaganda, war, city planning, and a hundred other common-sense activities.

The way in which these actualities of civic life blossom into being upon the pages of *The Republic* is from the standpoint of logic the most remarkable aspect of the treatise. Supposedly they are inferred into existence. And yet the mere weight of inference is not sufficient to account for the impact which they make upon the reader, nor for the way in which they reinforce the premises from which they are presumably derived. As a matter of fact, the details are not new. We have met them before, not as end-conclusions to a system of sorites, but as existing conditions in our own ill-organized and imperfect society. Cobblers, horsemen, poets, soldiers, philosophers; birth control, communal dining rooms, education for

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women, censorship of art—all of these have been encountered in the course of experience, before we ever knew that they might emerge from a course of dialectic reasoning. This is the reason that when they appear in *The Republic* they carry more than inferential validity. Innocent products of ideas they seem, but they bring with them the authority over the reason which actual existence gives. We are irresistibly pushed to the conclusion: if the ideal State can cause these common-sense regulations and activities to spring into being, it must be the ideal we are looking for. The premise upon which it is based must be valid. And the present order must have no other meaning than to point in its direction.

How subtly Plato relies upon this ingenious device, by which you (not he) whole-heartedly assent to the many details and on the strength of that assent inadvertently affirm the preceding principles! How often he calls forth involuntary admiration for his city in heaven by compelling your assent to the practical wisdom of its detailed structure. Call it, if you please, the fallacy of affirming the consequent. That is the way with the architects of a new Jerusalem. The plan is of heaven; the sticks and stones, the beams and mortar are of the earth. Yet earth looks heavenward and humbly accepts from heaven's hand the benediction of approval which it all unconsciously was the first to bestow.

It is apparent, then, that a social philosopher of Plato's sort has to substantiate his vision of what society ought to be by reference to those bits of concrete life which he has already chosen to incorporate into that ideal. The standard by which what is is judged is itself derived from actual experience. In fact, the ideal is more nearly a reflection of the social order in which the philosopher actually lives than it is prophetic of the social order which might come into existence if forces were set in motion to realize the ideal. Is it not pretty largely a compound of those intermittent experiences from which one has derived satisfaction and those yearned-after experiences which, seen in others, one covets for onself, a compound from which have been removed the discordant elements which at present mar an otherwise complete happiness? The pleasure-pain principle functions in the formation of social utopias, too. Their aims, contrary to the usual impression, are severely practical.[1]

[1] We are spectators of a contemporary example.

The ideal towards which the communist states of Soviet Russia are working is confessedly a more efficiently planned and more righteously administered United States of America, just as the ideal of the French revolutionaries was a duplicate of free England. The implication of this statement is not what the casual reader might infer. There is a fundamental difference between stumbling upon a social order like ours and consciously planning to bring that same order to pass in a form that will administer to the highest needs of all men.

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In no philosophical writing are these considerations more apparent than in *The Republic*, for which, by the way, we have to thank the engaging philosophical frankness of Plato. What is the State but the philosophical life writ large? It, of all lives, is alone wholly desirable. It alone possesses real meaning, and is blessed of the gods. To its perpetuation and enrichment all other lives should be bent. Can one fail to perceive beneath the premise that each man shall do what he is best fitted for, the more subtle assumption that each man shall do what the philosopher thinks he is best fitted for—in order that the philosopher may do what he chooses. In the end we return to Thrasymachus (as Woodbridge has so acutely pointed out in his *Son of Apollo*). Justice is the rule of the powerful, even though it be the power of clear insight and a trained intelligence.

I am unfair. The excuse for Plato is his inability to imagine a man who is not potentially a philosopher. The evidence for this limitation strikes one on every page. Men will be amenable to the guidance of a State in which order reigns and intelligence alone is cultivated. Even the dirt laborer can be trained to discipline and control his passions as the philosopher does, despite his inability to comprehend the end in view. By gentle methods he will be taught not to covet the rich fulfillments of life reserved for those worthy of enjoying them; he shall find in his rigorous life as a workman sufficient vicarious satisfaction to resign himself to the fate of his position, *like a philosopher*. Compulsion by brute force or economic pressure will not be necessary. For even the natural man can not hold out against the sweet reasonableness of a beautifully ordered state. In this connection it is interesting to note that the pictures of the promised land which the Hebrew prophets were forever painting never failed to contain one detail. The heathen, forbidden to enter, are not forgotten. They look up from below, hopelessly sighing for the joys which they are doomed to contemplate but not to experience. They resign themselves to their fate, and their resignation is so bitter because they know, as only those *in bliss* can know, what the happiness is that passes them by. They are not heathen, but not-Hebrews.

I have spent too much time with Plato. It has not been too foolishly squandered if the logical precariousness of defining the social object in terms of an ideal essence from which existing societies derive meaning, but which is itself supposedly independent of implication in existing orders, is apparent.

What has Rolland to offer instead? Like Plato, he too would wish the life of intelligent order and harmonious endeavor to prevail. Even more sensitive is he to the nice equilibrium which a stable family society makes possible, and which holds in precarious

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suspense the devastating forces of passion and unreason—not without occasional resort to war, as Rolland hints in more than one passage. It is perhaps because this ideal is so necessary a part of his make-up that he incorporates it in Olivier, the friend of Jean-Christophe, and then with the exquisite delicacy of a man torturing himself depicts its effects upon character when external facts by some luck refuse to support that ideal. Olivier embodies the Platonic spirit. Life for him is conceived in terms of a few simple propositions—love of family, wife, child; recognition from fellowmen which is ability's just due; respect from the less worthy; a sensible, unimpassioned pursuit of the quieter pleasures. When the carefully-built social structures that surrounded and sustained this set of propositions were swept away by a series of tragic but not unusual disasters, the syllogisms (the inner neural symbols of the outer institutions) in terms of which life was ordered and possessed meaning could not be completed. The premises hung in midair; they elicited no conclusions—for the conclusions demanded were concrete events in the actual world; and life had tragically arranged itself for the moment so that these events were impossible. There was nothing to do but die. Olivier enlists in a futile street revolt to bring into existence a shadow of his ideal, and, in the petty scuffle that ensued, is accidentally killed.

Are we to see in Olivier the futility which the artist-mind attributes to a syllogistic reconstruction of the meaning of existing institutions and activities on the basis of some hypothetical definition of the social object? Yes; if at the same time we do not neglect to notice the interpretation which the artist does give to the social scene. His way is the method of creative art, by which the significance of any experience to itself is made palpable through an art object. Jean-Christophe, the hero of the novel, is an embodiment of this attitude. He, too, has his fierce, logical idealisms, his premises and conclusions, in terms of which he evaluates and condemns. But, with Christophe, life precedes formulations and continues to dominate them. Vital forces rage within; no set of principles ever completely masters them. Yet art can hold the reins. Christophe finds, when still a boy, that he can tame the most obstinate impulse, the most irrational drive, the darkest mood, if he will allow it to incubate its own meaning in his inner self, and then let that meaning issue forth in music. So he goes through life, a lawless being—touching, tasting, mastering, bending all things to the will of his own integrity, bending always to the will of brute facts. When externals come tumbling down to wreck his plans and ideals, he takes what is left and in fierce joy builds a new life.

An artist-mind of this sort sees differently than the philosopher,

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as it moves out to interpret the social order. It can storm, pass judgment, censure, and prophesy. It can revolt. There were times when, if Christophe had had his way, like the Lord Jehovah he would have wiped all mankind from the face of the earth (himself included) and started anew. But always the practical reason re-asserted itself. In time, he came to feel that even the meaningless and the evil in his own age (and in Christophe we can see Rolland passing judgment upon his society) had its own significance, which he must discover and welcome and put into art. His intellectual task was not to find that ideal in terms of which a society is to be judged, but to find those ideal meanings into which existing orders can be made to rise—now, in art, and, for the future, in plans which improve things at definite, concrete points.

I hesitate to generalize. Yet does it not seem that the artist seeks to discover meaning in life, while the philosopher seeks to apply meaning to life? For both, the final source of meaning is actual experience; but the philosopher's task is mainly critical, the artist's creative. Need this dichotomy be? If it is the business of philosophy, as tradition has always said, to interpret the whole to the part, then is not Rolland rather than Plato the true social philosopher? Should we not be distrustful as philosophers of any definition of the social object which proposes to find the meaning of existing facts in some ideal order, itself built out of selected facts? Should we not on general principles be critical of any given set of social values which arrogates one type of living above all others? Should not our scientific job be the formulation of that abstract structure or skeleton upon which any society must be built, which any society does actually take, no matter what values it may choose to exemplify or to neglect? Should not our philosophical task be to justify the ways of men to God, by symbolizing them on the level of their intensest and most significant expression?

I am not sure. For, after all, the meaning which an artist is able to discover in an existing order is a finished one; and an evaluation which stops there, stops short just where implications and inferences begin to be really important. The rich meaning which ends realized can have, I, least of all, shall deny. There is a lifetime of living in them; insight deepens, the joy enlarges. But the circle of experience is closed; the meaning can not rise above its completeness. To confine philosophy to the understanding of the historian and the appreciation of the artist, for whom each age has its own significance and that is all, is to cripple philosophy for its most serious enterprise.

For philosophy has to do with the concrete flow of life from structure to structure. It is the one device of nature's giving by which

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the direction of that flow may be divined, and perhaps influenced. Its very essence is to enlist the authority of experience, past and present, for dreams and projects which experience itself would never suggest, were it not for the restless, ever dissatisfied hunger of man in his imagination for what is better. So, illegitimate processes of reasoning are the heart of philosophical thinking. We discover new scientific realms of experience by begging the question; we raise new social structures by the same process. Shoot Plato through and through with logical holes, till *The Republic* has not a leg left to stand upon. Still he remains; not for the fustian Utopia which he produced (in irony, perhaps) but for the leverage upon the future of society which his clear vision of one important way of life gave to men. If I am to remain a philosopher, I am afraid I shall have to follow in his footsteps.

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BOOK REVIEWS

The Adventure of Science. BENJAMIN GINZBURG. New York: Simon and Schuster. 1930. Pp. xvi + 487.

The substance of this book was delivered as a course of lectures at the New School for Social Research in New York City. It contains an enthusiastic and, in the main, a very well-written account of the principal achievements of scientific investigators, both ancient and modern, in all fields except psychology and the social sciences. The method of treatment is biographical, successive chapters being devoted to Pythagoras, Aristotle, Archimedes and Ptolemy, Copernicus, Galileo, Harvey, Newton, Lavoisier, Dalton, Faraday and Maxwell, Helmholtz, Lamarck and Darwin, Pasteur, Mendel, and Einstein. The last chapter gives an account of the Atom and the Quantum Theory. Eight of the chapters are accompanied by pictures of the heroes whose work they describe. Diagrams are helpfully employed in explaining the Pythagorean number theory, the Alexandrian eccentrics and epicycles, and the Michelson-Morley experiment. The book is well printed on excellent paper.

The merely casual reader may be tempted to pronounce Mr. Ginzburg's story of science an oft-told tale; for the narrative includes little or nothing which has not been discussed by other popular and semi-popular writers. But a more careful examination will show that the work is much more than another compendium of the sciences. Mr. Ginzburg's dominant interest is philosophical, and he has an epistemological point of view which—whether or not we can regard it as finally satisfactory—so colors the account of each

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of his scientific heroes as to impart a surprising degree of coherence to what might have been a mere succession of biographical chapters.

Mr. Ginzburg's fundamental thesis is that science is one of the arts. This is not to be understood as a denial of scientific objectivity, but rather as a protest against the view that the arts are content with mere subjectivity while science seeks objective truth. The author holds that none of the arts is purely subjective, and "what science actually accomplishes is not the abolition of subjectivity but its disciplining in very high degree" (p. xiii). In short, we are asked to consider science, not as an impersonal assemblage of laws and principles, but as a form of human activity; not as science *made,* but as *science in the making.*

It is obvious that this approach to modern science has many decided advantages; but when Mr. Ginzburg goes on to remark that "impersonal science is an abstraction" (p. xiv), the reader may well question whether the assemblage of data quite justifies the assertion. Indeed one gathers from Mr. Ginzburg's own narrative that the so-called "Mendelian laws" would have been discovered even if Mendel had never lived; that the accumulation of geological and biological facts would have necessitated the acceptance of the evolutionary point of view if there had never been a Darwin. And one has a feeling that much the same could be said about the discovery of the true nature of combustion, the laws of motion, the shapes of the planetary orbits, and most of the other outstanding achievements of the sciences. Mr. Ginzburg's account of Archimedes strikingly illustrates the truth that fruitful scientific research requires a community of workers rather than one supremely great man. And, in general, much could be said for the thesis that science is the work of mankind rather than of men. Even if we insist upon personalizing our history of science, we should remember that our justification for doing so is pedagogical rather than scientific. The hero-worshiper needs to be reminded that heroes are often made by the accident of favorable publicity; and that the actual difference between the great and the near-great is much smaller than their relative fame would lead us to suppose. History and biography would no doubt stand nearer to fiction in an objectivity-subjectivity scale than to chemistry, physics, or astronomy.

Mr. Ginzburg, I suspect, would concede most of this. He does not seem to take his biographical facts very seriously, and has been at no pains to document his narrative. His chief concern has been to dramatize his tale by using men of established fame as symbols for various phases and periods of the scientific adventure.

Mr. Ginzburg seems to be especially competent in handling the mathematical sciences. His supreme heroes are Pythagoras, Archimedes, Newton, Maxwell, and Einstein. The key to the understand-

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ing of Plato and Aristotle is found in their attitude toward mathematics. In the account of his mathematical heroes, the author displays, at times, a most engaging enthusiasm. Thus the Pythagorean correlation of musical intervals with mathematical ratios is acclaimed as the "greatest scientific discovery that has ever been made" (p. 8). And in the discussion of the relativity theory we are told that "the feeble ray of starlight next to the darkened sun, which by its bending verified Einstein's invariant equations, symbolized the immanent objective order of the universe" (p. 384); for Einstein's theories "have consolidated practically the whole of physics (exclusive of the problem of the atom) into a single system. . . . They show us that scientific giants do not exist only in history, but also right in our own time" (p. 425).

It is a little surprising, however, that Mr. Ginzburg should recite the "story of the two twins" as an illustration of the relativity of time and space measurements (p. 405). It will be remembered that one member of this celebrated pair traveled to Sirius and back again, while the other—like the little pig of the nursery rhyme—stayed at home. The stay-at-home brother had lived forty years by the time his mate returned; but both the clock and the "biological processes" of the traveler had been "slowed up" with the result that *he* had been gone only twenty years! Now it is hard to see how this can be regarded as an illustration of Einsteinian relativity. For if A is moving with speed x with respect to B, all consistent relativists must agree that it is equally true to say that B is moving with speed x with respect to A; and if A's biological processes have been slowed up with respect to B, it must be equally true that B's biological processes have been slowed up with respect to A.[1]

Mr. Ginzburg fails to see this difficulty; for he continues, "On the basis of the Michelson-Morley experiment, the facts of the story are those which science must predict and which must be verified if the experiment could be performed under set conditions" (p. 406). It is obvious, however, that this remark implies what Mr. Ginzburg has called "the Lorentzian explanation of the Michelson-Morley experiment" (p. 400) rather than that of Einstein. For if it were possible to observe a slowing up of the biological processes of the traveling twin, this would amount to a determination of absolute motion. But the principle of relativity is equivalent to the assumption that "it is of necessity impossible to determine absolute motion by any experiment whatsoever."[2]

This suggests certain questions concerning the "general" theory

[1] *Cf.* Professor Lovejoy's articles in the *Philosophical Review*, 1931, pp. 48–68 and 152–167.

[2] Jeans, J. H., *Encyclopedia Britannica*, Thirteenth Edition, article on Relativity.

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of relativity. Have not its popular expounders been singularly forgetful of the fact that when one body is suddenly accelerated with respect to another only one of them experiences the jolt;[3] or when one body is made to rotate with respect to another only one of them is subject to the stresses produced by this rotation (or revolution)? And how can Mr. Ginzburg say (p. 417) that it is now "a matter of indifference whether we regard the sun in motion and the earth at rest, or *vice versa*"? For according to the relativistic explanation the motion of each of these bodies is determined by the curvature of the space (or space-time) in which it moves, which in turn depends upon the quantity of matter in or near the region in question. Is it then a "matter of indifference" whether we say that the mass of the sun is 330,000 times that of the earth or that the mass of the earth is 330,000 times that of the sun? Surely, this would be relativity with a vengeance!

To his credit be it said, Mr. Ginzburg has portrayed Einstein as a man, and not as a super-thinker who has a perfect understanding of all things,—including some which must remain forever extremely puzzling to the common herd of cosmologists. Mr. Ginzburg has not advocated any such esoteric mathematicism; for he has made a valiant attempt to translate the mysteries into ordinary speech. All I have meant to urge by way of criticism is that in a few places he has somewhat uncritically repeated the questionable statements of certain other popular and semi-popular expositors. However, he does not attempt to draw any theological or ethical conclusions from the theory of relativity, but remarks (p. 425) that "The connection between relativity in physics and relativity in morals is largely a verbal pun." In the discussion of the quantum theory, too, the author is to be commended for his refusal to follow Eddington in drawing radical epistemological and theological inferences from the principle of indeterminacy.

It must be admitted, however, that this chapter on the quantum theory is somewhat less successful than most of the earlier chapters of the book. It is, indeed, a heavy and difficult discussion, partly perhaps because the author has not succeeded in relating it to any outstanding personality.

The chapter on evolution is well written, and the life and work of both Lamarck and Darwin are sympathetically described; but the presentation is nevertheless curiously biased and incomplete. Strangely enough, there is no reference to recent work on artificially induced mutations—no reference, indeed, to mutations of any kind! This is the more remarkable in that the problem of explaining the occurrence of variations is made one of the principal

[3] *Cf.* Mackaye, James, *The Dynamic Universe*, pp. 257 ff.

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counts in the argument against Darwinism. And it is hard to resist the suggestion that the oversight has some connection with the author's anti-Darwinian and pro-Lamarckian polemic. For in view of the fact that mutations do not seem to occur any more frequently in the direction of better adaptation than in that of worse, the mutationist is obliged to fall back upon the concept of natural selection to explain such adaptedness to environmental conditions as actually obtains.

As we have already remarked, Mr. Ginzburg's fundamental thesis is that science is one of the arts. There is then a sense in which the body of doctrine resulting from scientific inquiry, instead of being an exact or complete copy of reality, is a human creation. Science, says Mr. Ginzburg, can not be pictured "as a quest for the eternal laws of the universe" (p. 455). On the other hand, it should not be regarded as "a purely subjective activity," having no correspondence with reality (p. 457). "The structure of scientific theories corresponds to something in the nature of reality without being a complete copy of that reality" (p. 458). "It is through the lead of such an idea," continues Mr. Ginzburg, "that we can properly reconcile the truth of natural science with the truth of ethics and other values." This reconciliation is to be attained through the recognition that science is able to deal with the universe only in so far as it is static, and that for this reason the scientific model of the universe can never exhaust the nature of reality.

It is, however, by no means clear that any such "reconciliation" is required. It is not clear that a static universe would necessarily be hostile to values; for as Mr. Ginzburg uses the adjective, it is obvious that reality may change and change and still be "static." It is true that science postulates permanence; it assumes that what has been will be. But this does not mean that reality is supposed to be literally unchanging. Even if reality is constantly flowing, it may nevertheless be possible to discover routines, to formulate laws which describe the ways in which the flow takes place. And if the laws themselves are found to change, science may look for laws of a higher order in accordance with which these changes take place. But if at any level, however remote, laws should be discovered which are not themselves subject to change, these would be "the eternal laws of the universe."

Now it is hard to see why such a universe should be regarded as less favorable to values than a universe which science must be forever unable to "exhaust." I must confess my complete inability to understand why "static" science should be supposed to "rob us of the ability" "to profit by experience and to achieve ideals" (p. 459). Indeterminism may perhaps be the true view of the world;

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reality may be fundamentally irrational, or contain non-rational elements or aspects. But in the nature of the case, this doctrine can never be proved; and it is not at all clear that its acceptance is required in the interest of ethics. Much can be said, indeed, for the contrary doctrine, that ethics, like the physical sciences, is possible only in so far as the world is the domain of law.

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Studies in the Eighteenth Century Background of Hume's Empiricism. MARY SHAW KUYPERS. Minneapolis: University of Minnesota Press. 1930. Pp. viii + 140.

Mrs. Kuypers' essays on Hume, written originally as a doctoral dissertation, succeed in making clear to what extent and in what ways Hume's empiricism was a criticism of philosophical tendencies of his century. Hume's chief desire, as Mrs. Kuypers reminds us, was to introduce the experimental method into moral subjects; but his actual accomplishment, measured at least by the force of his influence, was really not in the field of moral subjects at all. Rather his moral interest led him to attack the *a priori* and rationalistic method of dealing with matters of fact and so to become involved in a critique of science. And here it is, particularly in connection with the principle of causation, that his ideas have been historically most important.

Mrs. Kuypers' discussion falls into two main sections (though these are not quite identical with the divisions indicated by her table of contents). One section concerns Hume's relations to seventeenth- and eighteenth-century science. Three difficulties in the scientific thinking of his day were his objects of attack. First, he saw clearly the full sceptical implications of the dualism common to the scientific developments that culminated in Newton and to the philosophical justification of these developments that was formulated by Locke. He at least, though here he seems to stand uniquely apart from the popular mind, realized the inconsistency between affirming that all ideas must be tested by experience and denying that any objects other than ideas are present in experience. Secondly, he accepted Berkeley's insistence that we must not permit scientists to hypostatize force, gravity, inertia, etc., but must view such concepts as formulae of experienced sequences. And unlike Berkeley, whose theological interests restrained him at this point, he went on to inquire in the same spirit into the concept of cause. Thirdly, he held that empiricism does not make possible a quick and easy passage from observed facts to an alleged theological explanation of these facts. If we can not find efficacy in the world immediately about us, it is doubtful whether we can significantly

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and legitimately attribute the efficacy of all processes to God. With all these three difficulties Hume was inevitably concerned if he was to show why the rationalistic method of reasoning was inadequate. And so, though he was primarily a moralist in interest and intent, he got into problems of epistemology, metaphysics, and science, and developed a philosophical system that touched every phase of eighteenth-century thought. If his attack on such contentious matters as miracles and particular providence (which he gives as examples of how his method should be applied) led to more immediate controversy than any other of his writings, his general position came to reinforce considerably the sceptical implications of the experimental method for scientific procedure.

The other section of Mrs. Kuypers' discussion deals with Hume's empiricism in the fields of ethics, politics, and historical writing. Hume's ethics has been so often dealt with that there is less of novelty in this chapter. But the treatment of Hume's empiricism in the fields of politics and historical writing contains much material that students of philosophy have not formerly brought into relation with the other parts of Hume's thought. Hume did much to break down the political dogmas that Locke's influence had fastened on the eighteenth century and Bolingbroke's struggle for power had led him to exploit. He contended that justification for any government must be found, not in any alleged origin of the state or any authority outside the immediate social situation, but in the benefits or harm that the government produced. Thus empiricism works out surely to a kind of utilitarianism. This line of criticism, as Mrs. Kuypers interestingly points out, aroused no storm of opposition so long as Hume expressed it in his detached political essays. But when he went on to write his history of England from the same point of view, he became the target for violent attacks. The political parties of the middle of the eighteenth century were not anxious to defend dogmas but to maintain themselves in power. And "a party living upon traditions requires little theoretical justification for itself, but it is certain to have an interpretation of history which it holds to be above criticism" (p. 121). Thus when Hume discussed history, he found himself denounced as a Tory. Mrs. Kuypers argues neatly that the growing conservatism of Hume's political views (which led to revision of the earlier editions of his political essays) was not an abandonment of his empiricism in favor of secretly cherished dogmas. Rather it was due to his empirical sensitiveness to events (like the Wilkes affair in the 1760's) which seemed to him to demand wiser counsel than the populace proved competent to supply.

STERLING P. LAMPRECHT.

AMHERST COLLEGE.

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An Outline of Social Psychology. J. R. KANTOR. Chicago: Follett Publishing Co. 1929. Pp. vii + 420.

As the author says in the Preface, social psychology is so romantic "that its very identity is an enigma." The books which have actually appeared seem to indicate that the writers decide for themselves, individually, how the enigma shall be solved. Consequently they differ widely, sometimes merely writing a philosophy of social evolution with emphasis on the importance of mind, at other times exploiting the possibilities of pure behaviorism in what they distinguish as social situations. Professor Kantor states that the "central task of the present volume is to present as satisfactory a statement as possible of the psychological facts of social psychology." This is a worthy object if it can be considered sufficiently distinct. But in fact the program is complicated from the beginning by the admission that the facts do not exist alone: "they are always set in a matrix of humanistic events." The result, in brief, seems to be that this writer intends to see how his own concept of organismic psychology can be elaborated in a set of terms which have a social significance. He elects to call this "institutional social psychology."

After making a critical examination of the present conceptions of social psychology, the author develops his theme in four parts. The first part deals with perspectives of social psychology; the second with the data; the third with the relativity of individuals and psychological collectivities; the fourth with some psychological phenomena as aspects of humanistic situations. In this statement we have quoted the author's own words, feeling that this was the safest course. In spite of some intensive study, we have failed to overcome the impression that the book as a whole is an exercise in translating obvious facts into an esoteric language. Emphasis is laid on the point that psychology now avoids psychic states; to be modern it must be objective, and to understand the word "objective" we must refer back to the author's systematic organismic psychology. As an example of matter and method we may quote the following: "One of the most fundamental conceptions of objective psychology is that of rational biography. We recall that this conception refers to the individual's actual development of behavior. Since only responses are psychological facts every element of psychological science is developed in the person's progressive contacts with objects and situations. These interactions constitute his reactional history or biography." With this statement no one will quarrel, but many readers will probably wonder what it exactly achieves. Similarly (p. 217) the fact that there are different dialects in the Anglo-Saxon world is translated into the statement that "each of

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these reactional collectivities performs English language responses by using particular modes of English expression."

The early promise of social psychology has, according to Professor Kantor, not been fulfilled. Its progress still seems disappointing. Perhaps this indicates that it is not yet either an art or a science, but a point of view. This age, we are told, is a psychological age, and it wants to restate its anthropology, history, and economics in a language which is at least colored by psychology. Whether the terms and the method which Professor Kantor offers in this book are the best instruments to effect the transformation must be left for the readers to decide.

G. S. BRETT.

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INTERNATIONAL JOURNAL OF ETHICS. Volume XLII, No. 1. Discussion: The Aim and Content of an Introductory Ethics Course: A Symposium by Seven American Professors: *A. P. Brogan, Clifford Barrett, Robert C. Givler, W. B. Mahan, George Boas, Albert E. Blumberg,* and *Paul E. Johnson.* Index to Volumes I–XLI.

ERKENNTNIS. Band 2, Heft 2–3. Bericht über die 2. Tagung für Erkenntnislehre der exakten Wissenschaften in Königsberg 1930.

Joseph, H. W. B.: Some Problems in Ethics. Oxford: Clarendon Press. 1931. vi + 135 pp.

Ross, W. D.: The Right and the Good. Oxford: Clarendon Press. 1931. vi + 176 pp.

Russell, Bertrand: The Scientific Outlook. New York: W. W. Norton Co. 1931. x + 277 pp. $3.00.

NOTES AND NEWS

We regret to announce the death of Professor Herbert Wildon Carr on July 8th at Los Angeles, after a long and painful illness.

Professor Carr was 74 years old and had been Visiting Professor of Philosophy at the University of Southern California since 1925, and Professor of Philosophy at the University of London since 1918. Among his books are the following: Henri Bergson, 1910; The Problem of Truth, 1911; The Philosophy of Change, 1914; The Philosophy of Benedetto Croce, 1917; The Principle of Relativity, 1920; The Theory of Monads, 1931; The Scientific Approach to Philosophy, 1924; Changing Backgrounds in Religion and Ethics, 1927; The Unique States of Man, 1928; The Freewill Problem, 1928; Leibniz, 1929; Cogitans Cogitata, 1930.

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The Journal of Philosophy

NEUTRALISM AND RADICAL EMPIRICISM

If protests had power to alter prevailing climates of opinion, Professor Urban's vigorous attack upon "Modernism in Science and Philosophy"[1] would have ere this inaugurated changes hopefully awaited by some who have shared his perplexity and suspicion concerning certain recent and contemporary philosophical tendencies.

"Modernism," as used by Professor Urban, is a blanket term which covers many philosophies as disparate as Jamesonian pragmatism, Bergsonian intuitionism, and logical atomism. It means among other things a too hasty abandonment of once accredited norms and contempt for the type of mentality which saw in historic continuity of thought at least one condition of philosophic progress. "A too great readiness to accept the a-logical and the unmeaning as the deepest character of reality" has brought philosophy to the brink of the chaotic with suicidal compulsion. It can save itself, thinks Urban, only by "doing its first works over again. . . ."

It is a serious task with which to charge the philosophy of the future, involving, if it be necessary, the work of many minds and many years. As such it is mentioned here only because the calendric period in which philosophy lost its reckoning coincides, Mr. Urban seems to say, with the rise of Radical Empiricism.

Now the "Radical Empiricism" of James, introduced by his then unique conception of consciousness,[2] is by general agreement one important source of the subsequent "neutralism." Neutralism is still identified with the realisms and their exclusive emphasis upon analysis. The present paper, while envisaging the larger problem, Is there a type of neutralism that will accord due recognition to wholeness as well as to analysis? will confine itself principally to a situation revealed by the initial step of James' Radical Empiricism in so far as this affects the realist's neutralism.

In brief characterization of the latter, the term "neutralism" has been used to designate the doctrine of neutral entities which for two decades has played an important part in neo-realistic constructions and epistemological controversy. It is a type of epistemological monism which, as noted, has its origin with James, though referred by him to Mach, the term "neutral entity" being ascribed to H. M.

[1] *Journal of Philosophical Studies*, Vol. V (April, 1930), pp. 230–245.
[2] "Does Consciousness Exist?" this Journal, Vol. I (1904), pp. 477–491.

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Sheffer. The neutral entity itself, neither physical nor psychical except for the relational context in which it is held (to employ the earlier language of description) is an ultimate or pseudo-ultimate simple, an hypothetical last term reached by analysis. Professor Smart's designation of it as a "metaphysically postulated element conceived principally, it would seem, for the purpose of constructing reality out of bits,"[3] notices that feature of the prevailing neutralism which is chiefly provocative of the present discussion. For the initial processes of James' Radical Empiricism do not necessarily lead to the type of neutralism that is so generally associated with the pluralistically devised and analytically determined neutral entities of neo-realism. This must be the writer's apology for the reintroduction of concepts and viewpoints reminiscent of ways in philosophy now held in many quarters to be outmoded, and a second must also be offered for a brief postponement of the problem while certain tendencies are noted in explanation of its presence here.

While the trend of method is in most quarters prevailingly analytic in accord with the dominant tendency in science to emphasize discontinuities, counter-tendencies have in recent years multiplied. They are for the most part trivial and signify, many would say, a merely momentary shifting of emphasis in certain sciences that is not of special ontological or epistemological import. *Field, pattern, meaning, Gestalt* or *configuration, situation,* and the like innocent terms have for some time expressed laboratory findings in various fields all within the day's work of an analytic and—many would again say—strictly mechanistic program.

Nowadays one does meet more and more frequently the term "holistic" quite in dissociation from the constructions of General Smuts, and in this connection a report of the last International Congress of Philosophy may be cited. The session on mechanism and vitalism "made clear that the present trend of thought on this issue is toward neither of the old extremes, but toward a middle position which may be roughly identified with the 'holism' of General Smuts."[4] Recently the terms "situationism" and "naturalistic occasionalism"[5] have appeared as a partial concession to dualism, on the one hand, and emergence, on the other. Discontinuities which have been affecting the causal relation are beginning to be troublesome to the philosophies of pluralism and discontinuity. In the studies of wave mechanics and of the quantum theory the balance is pretty well maintained between continuity and discontinuity, particles appearing to behave as waves and waves as particles. Pos-

[3] "Professor Perry's Empiricism," this JOURNAL, Vol. XIX (1922), p. 575.

[4] Brand Blanchard: "The Seventh International Congress of Philosophy," this JOURNAL, Vol. XXVII (1930), p. 594.

[5] R. H. Dotterer: *Philosophy by Way of the Sciences. Passim.*

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sibly, as Professor Northrop states, neither can be resolved into the other.[6]

Separately considered, such tendencies mean little or nothing, but in alignment appear suggestive. The Part-Whole problem has been receiving increasing attention, not only from the logician, but from the worker in various fields of science. It has been termed "a puzzle that concerns the very nature of scientific method."[7] to which may be added, the very nature of philosophical method. Thus it must affect also the concept of *neutrality* and the legitimacy of its derivation by the one-way street method of analysis.

In "The New Realism" and "The New Rationalism" and elsewhere in the literature of realism the Part-Whole problem underwent investigation. To the extent that the pluralistic program of realism and its one-sided doctrine of relations would permit, organic wholes determinative of parts were accorded place in the scheme. Still, an investigation that is chiefly a cataloguing or classification may neglect important features. At present the organic whole seems everywhere on the point of transcending the limits set for its legitimate exercise by the jealous guardians of analysis who fear that it can not be accorded its due without riotous consequences.

Writing "Towards a New Philosophy,"[8] Dr. Ph. Kohnstamm affirms that a Whole of this type "as something which is greater and richer than the sum of its Parts must be one of the tools of our new approach." Lloyd Morgan's emergent "as something more than the additive resultant of the constituents" and Whitehead's "organic conception of enduring patterns or wholes" afford instances of the newer perspectives in which wholes are beginning to recover the significant rôles they had lost with the decline of idealistic philosophy (which had recklessly hypostasized them as subjective entities) and the rise of Radical Empiricism which was largely responsible for that decline.

However, to the writer, at least, it remains a harassing question whether the concept of wholeness can ever be given its proper and sober methodological valuation without an experimental return to the concept of immediacy in search of some possibly neglected neutral medium in which whole-determinative-of-part and part-determinative-of-whole may be seen in other perspectives and perhaps in truer factual relations than at present. This is again the "larger problem," above noted, which, it is hoped, may justify discussion of certain obsolescent aspects of James' philosophy.

[6] F. S. C. Northrop: *Science and First Principles*, p. 241.

[7] W. A. Copeland: "An Instrumental View of the Part-Whole Relation," this JOURNAL, Vol. XXIV (1927), p. 97.

[8] *Journal of Philosophical Studies*, Vol. V (1930), p. 168.

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II

First it may be well to inquire what we should mean by a "neutrality" concept and what conditions it should fulfill if it is to be genuinely neutral. Now by neutrality as applied, let us say, to human affairs we mean surely that one who is said to be neutral has adopted a certain attitude toward contending parties or interests. In other words, one is always neutral in respect to *something*. Professor Dewey called attention to this in an article on "The Concept of the Neutral in Recent Epistemology," at the same time distinguishing this, its "logical" use, from neutral as applied to ontological *stuff*. "In one sense," said he, "to call anything neutral means neutral *in a specified respect or reference;* that is with reference to the application of a particular set of alternatives."[9] But if neutral, even in this "logical" sense, "means neutral *in a specified respect or reference,*" neutrality is an active state (in the case of a person, an attitude).

Thus the neutral is not simply the nondescript; it is not utter "irrelevancy." It can hardly be said that a cat is neutral regarding the merits of prohibition or of the planetesimal *versus* the nebular theory, such matters being simply irrelevant to feline mentality. Moreover, the same individual who is neutral toward certain interests *in a definable respect* may be obviously far from neutral in other respects. Further, I see no reason why he may not be as biased and prejudiced as you please concerning the issues or interests in question. The one condition to be fulfilled (doubtless a difficult one in the latter circumstances) is, that his prejudices shall be held in such restraint that they shall affect in no slightest degree the precise differences which his gentleman's agreement has declared shall be held irrelevant. Being neutral in a certain respect, he is under bonds not to use his specified and limited neutrality to the prejudice of contending interests outside its sphere of application.

If the foregoing conception of neutrality as something positive and selective or discriminatory is justified, it has relevancy for certain criticisms that have been urged against James' historic conception, "a conception having presumably," Professor Dewey says, "certain affiliations with the contemporary conception of the neutral."[10] To this conception we now turn. In what follows we shall be concerned with those features of James' essay, "Does Consciousness Exist?" that appear to suggest a type of neutralism other than that imposed upon realism by the analytically determined entity which, as before said, issued in part from his constructions.

[9] This JOURNAL, Vol. XIV (1917), pp. 161–163.
[10] *Ibid.*, p. 162.

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III

It will be recalled that in that essay James announced his slowly matured conviction that "consciousness" is "not an entity" but a function, "Experience" being "the one primal stuff" from which philosophy must make its start.

In those days the term "entity" did not usually possess in philosophy its present convenient and elastic connotation as "a colorless word for object,"[11] but retained an earlier ontological signification. Entities of the ontological substantive type were coming into ill repute. Many believed that the contending idealisms and materialisms had taken them too seriously, considering the doubtful status of their opposing claims and the derivation of these foci about which the opposing systems had revolved from the beginnings of Cartesian dualism—if not from early culture when animism was pitted against the dawning recognition of objective uniformities. However, it was hardly suspected that these entities owed their disputed ontological status to relational contexts, or (to borrow from its usual context a convenient term) frames of reference. The various monisms and panpsychisms of the day, neglectful alike of scientific method and idealistic motif, had sought compromise by clapping together the physical and psychical in some remote mind-stuff.

By declaring that the supposed heterogeneity of thoughts and things is to be explained as an affair of relations James cut the Gordian knot which neither the idealisms and materialisms, full-circling toward one another from opposite foci, nor the mediating panpsychisms had been able to unloose. Opposing (Old Style, as we shall call them) entities, such as thought and thing, consciousness and object, cancelled out, or seemed to do so. By what may be termed a Cartesian return to immediate experience James cut beneath the dualistic presuppositions that underlay most of the philosophies of nearly three centuries and, to employ a critical-realistic and behavioristic slogan of the following decade, had "wiped the slate clean."

Here we may pause for a moment to note one or two of the many criticisms that have been passed upon James' apparent legerdemain. *Was* it a trick, though in sincerity performed,—"this short and easy method for disposing of dualism"? Professor Lovejoy, writing of James in *The Revolt Against Dualism*, seems to think so, the point being that "the logical truism that a thing [e.g., 'the one identical room' of James' illustration which may belong to either of two contexts] may without contradiction belong to two classes," affords no solution, no cogent argument against dualism.

[11] E. S. Brightman, *An Introduction to Philosophy*, p. 384.

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"We may always entertain, in advance of inquiry, the hypothesis that a thing known to have certain properties or relations, *abc*, may be numerically identical with a thing which is otherwise known to have certain other properties, *xyz*. But identity is not even possible unless the attributes *abc* are compatible with *xyz*" (p. 46).

It does not seem to me that James would object to this. But more is involved than bare numerical identity. If in one's epistemology there lurks a pre-Jamesian ontological prepossession, *S*, which affects both sets of properties, *abc* and *xyz* according to the import that the *S* may retain, the cancellation of *S* from *S*(*abc*) and *S*(*xyz*) will leave *abc* and *xyz* as like or unlike one another as they empirically prove to be. Is it not for this reason that "in the end," as Professor Lovejoy notes, "the sharpest contrast is set up by James himself between 'mental' and 'real' entities," when he says that " 'Mental fire is what won't burn real sticks; . . . Mental knives may be sharp, but they won't cut real wood . . . ,' " etc.? (p. 47). "Real" is evidently here used in its unmetaphysical plain-man contrast with "mental," and if real frogs and mental frogs should turn out to have properties or relations which render them more unlike one another than real frogs and real fiddles, there is nothing in James' view to indicate that such discriminable inequalities of contrast or difference would not be accepted. So far, James' "neutrality" is of a very relevant sort, relevant, namely, to a quasi-substantive view of consciousness derived from the traditional dualism that was inherent in the late nineteenth-century idealistic monisms.

IV

The same stroke of the pen that eliminated the two-world metaphysical dualism and the remnants of the substantive conception of consciousness had two other important results. First, by declaring that consciousness is "diaphanous," with the dropping of its transparent but stubbornly resistant metaphysical membrane, "awareness" was transformed into content, which was, in intent, at least, no longer subjective (apart from relations), being simply "experience" as given. But, second, the "unity of consciousness" central in previous idealistic theories of the knowledge relation, now became a function performed by experiences in certain relations. "Self" became autobiography.

It is at this point that James' neutralism ceased to be neutral by allowing prepossessions against the then regnant idealism to influence his professedly neutral "experience." For besides "awareness," which he had declared irrelevant to the distinction between thoughts and things, "consciousness" has been the *bearer* of *a type of relationship* made known *through* awareness. With the change

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in the status of the latter the status of "consciousness," "subject," even of "introspection" is also altered, but the above type of relationship remains and is as significant as before, though no longer to be accounted for by (O. S.) subjective entities. By ignoring this unique and ubiquitous whole-determinative-of-part relation (alias "unity," "subject," and the like) which had been wrongly *referred to* subjective entities, James threw the weight of his new epistemological monism and would-be neutralism on the side of discreteness, discontinuity, and analysis. A less biased survey of the results accomplished by his preliminary thesis might have made a different story of Radical Empiricism.

For partial confirmation of the viewpoint here adopted we may refer to criticisms made by Professor Leighton from the standpoint of "Dynamic Idealism."[12] With Lovejoy and others he believes that James' theory "has an artificial simplicity," that he does not "lay the ghosts of the dualisms of mind and body, of thought and physical things, of immanent experiencing subject and transcendent object, which have annoyed philosophers for centuries." He agrees with James "to the extent that consciousness is a function of the individual organism." "Consciousness then is a function rather than an *entity* [O. S. Italics mine]. But I would insist that it is a function or attitude of a unique kind of entity in unique relations; namely a *self* or *subject.*" Now, says Professor Leighton (after queries which can not be noted here), "whether one call consciousness a function, or something else, it *has* an 'inner duplicity,' which can not be evaded.

" 'In order that there should be an experience, it is not sufficient that qualities and relations should be or be there; it is likewise necessary that they should be in a recognizable and identifiable synthesis. The synthesis is an actual factor of experience.' "[13]

The above confirms the writer's opinion that James ignored an important and unique type of relation, made known *through* consciousness as the typewriter before me is made known *through* consciousness (whatever it be that in itself makes no difference to what is known), and which Leighton refers *to* consciousness and McGilvary speaks of as a *synthesis.* But since the present argument endeavors to move within the limits set by a Radical Empiricism which seems to issue from James' initial thesis, we can not have recourse to selves or to other entities *of which* consciousness is said to be a function. Concerning the "unique function," the "inner duplicity," and the alleged "synthesis" more will be said. There *is* a unique type of relationship, and there *is* an inner—at least a

[12] *Man and the Cosmos,* pp. 321–323.

[13] Quoted by Leighton (*ibid.,* p. 322) from E. B. McGilvary, in this JOURNAL, Vol. VI (1909), p. 250.

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given—duplicity or polarity, but their loci are not necessarily *within* consciousness, rather, within the neutralizing solvent itself. James' term for the latter was, unfortunately as it turned out, "experience," which must, then, be the next topic.

V

In so far as the subsequent trend of (chiefly American) philosophy may be referred to James' Radical Empiricism the ambiguities that lurk in the concept of "experience" are in part responsible for the one-way tendency imparted by that empiricism.

(1) Certain of these ambiguities are scarcely to be avoided because of the many significations that attach to the term itself. Thus "immediate experience," however well intended as a neutral concept, has never been able to free itself from the charge of subjectivism. Between immediate experience as "what appears qualitatively and focally at a particular moment,"[14] and experience as "something at least as wide and deep and full as all history on this earth,"[14a] which seems to be Professor Dewey's present definition of the term, there is a whole gamut of meanings.

(2) A second type of ambiguity may be referred to Mr. James' own treatment of the concept. Thus "At times Mr. James identifies a pure experience with a peculiar subject-matter or stuff; it is of something which *antecedes* all reflection. . . . Contrast with the doctrine just laid down the following: 'The instant field of the present is always experience in its "pure" state, plain, unqualified actuality, a simple *that*, as yet undifferentiated into thing and thought, and only virtually classifiable as subjective fact or as some one's opinion about fact.' According to this passage, the experience in which a distinction is made between fact and opinion is itself, as a direct occurrence, 'pure' of the distinction: it is 'neutral' in reference to it."[15] This is the previously noticed distinction which Professor Dewey made between the ontological and logical aspects of James' neutrality concept. Does it not seem that James achieved his epistemological monism by using "experience" as a logically neutral concept to sweep away the old dualism and *then* employed "stuff," inconsistently hypostasized, as building material for a particularizing and atomizing theory of the knowledge relation?

Space is lacking for discussion of this point, but the following may afford indication of the trend of meaning here. Early in the "essay" which is before us James states the thesis "that there is

[14] John Dewey: *Experience and Nature*, p. 7.

[14a] *Ibid.*, p. 8.

[15] John Dewey: "The Concept of the Neutral in Recent Epistemology," this JOURNAL, Vol. XIV (1917), p. 162.

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only one [italics mine] primal stuff or material in the world, a stuff of which everything is composed, and if we call that stuff 'pure experience,' then knowing can easily be explained as a particular sort of relation towards one another into which *portions of* [italics mine] pure experience may enter.'' [16] Later we learn that it was only ''for fluency's sake'' that he spoke of a *stuff* of pure experience and that ''there is no *general* [*sic*] stuff of which experience at large is made. There are as many stuffs as there are 'natures' in the things experienced.'' [17]

These statements tread on the heels of the declaration that ''neutral and simple 'pure experience' is *something we know not at all''* (italics mine), and are followed by the explanation that ''it is made of *that,* of just what appears. . . .'' Now if ''pure experience'' is something we know nothing about, save as ''just what appears,'' how can it be so confidently asserted that it is ''no *general* stuff'' with the implication, later confirmed in the epistemology of Radical Empiricism, that the ''natures'' are particular (ontological) stuffs? For *what appear* are by no means always (if ever, except by the self-same postulation that ''wholes'' require) discrete natures. As Professor L. J. Russell suggests in an article that touches the Whole-Part problem, ''What if there should prove to be no separable ultimate elements of things, and no whole of Reality [for our point, no general stuff] which imposes a character on all the partial wholes within it?'' [18]

(3) The preceding suggests that certain of the ambiguities which attach to James' ''experience'' are not chargeable to the shiftiness of that concept, but to the well-known prejudices that James shared with others of the day in which he wrote—and would share with many to-day.

As a noticeable example, it will be recalled that (capitalized) ''Experience'' had played a leading rôle in the philosophies of Absolutism against which all other parties were beginning to nurse a grudge. Thus James himself, always ill-disposed toward Absolutism and all its works, missed or ignored what might be termed the ''holistic'' implications of a genuinely neutral ''pure experience'' or ''bare indeterminate experienced given,'' [19] deprived, as it should have been, of ''stuff'' both general and particular, and yielding only methodologically conceived and postulated ''wholes'' and ''parts'' in antithetical perspective or frames of reference. Also, by treating experience as if it had no *inner* (as complement and

[16] This JOURNAL, Vol. I (1904), p. 478.

[17] *Ibid.*, p. 487.

[18] *Journal of Philosophical Studies,* Vol. V (1930), p. 259.

[19] The qualifying words ''bare indeterminate'' were suggested by a term used by Professor F. S. C. Northrop in *Science and First Principles,* p. 256; *passim.*

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methodological corrective of its outer) duplicity he lent initiative to the subsequently formulated theory of *external relations* to the entire exclusion of *internal,* and made to the rationalist only the pseudo-concession that relations (to be additively considered) are real.

There is no doubt that in James' hands idealism was thoroughly denatured, and there should be reason for idealistic complaint that something was effected as a war measure for which the method of arriving at Radical Empiricism did not provide.

VI

If we ask what that *something* was, the answer seems clear. The blow which idealism sustained at the hand of Radical Empiricism was not the stroke that severed from the parent trunk "consciousness," "self," "subject," "mind," etc., for these were only the limbs and great spreading branches of the tree. It was the stroke that, through the alleged neutrality of the "experience" concept, sought to destroy the roots of the tree from which, deep sunk in the soil of the "given," idealism had drawn its "unique relation."

To drop metaphor, the epistemology of idealism, which has of late made too many concessions and withdrawals, is not bound up with the fate of consciousness, self, and the like, however important these holistic concepts may be thought to be, but with a certain given relational frame of reference. For with the gradual progress of idealism since its nineteenth-century Romantic Period it has become increasingly evident that what was central in its treatment of the knowledge relation was not self or mind or "unity of consciousness," but a wholeness relation that emerges as directly from the indeterminate given as any punctual object.

But from the historic dualism had come *via* Kant an *alien* manifold. Hence the (from one whole-part perspective) genuinely ubiquitous "whole" became the ubiquitous "synthesis" which, under various aliases sought to engulf the manifold and account for the world in terms of creative Mind. Since Berkeleyanism had suggested a way of spiritualizing the universe and both religious and philosophic interest were thereafter enlisted in behalf of selves, the "unique relation" became exclusively an affair of some subjective entity, the constitutive character of which as such idealistic epistemology was never quite able to make good. Idealism, as we see it here, is basically an intuitionism. In each there is the same insight into wholeness, and with that insight epistemology must reckon sooner or later. For in a really radical empiricism the intuited whole is, aside from specific relations, no more subjective than the object perceived, contact of the organism with its environment being presupposed in the one case no more than in the other.

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Closely following the article, "Does Consciousness Exist?" came "Radical Empiricism" (under which title the former was later incorporated), and the contexts were more fully provided for a new epistemology. This was seemingly adjudged the more important contribution and discussion turned to this without, as it seems to the writer, sufficient pause to consider in isolation the situation resulting from the initial step in the disposal of dualism. But if we view that situation in abstraction from the usual epistemological relations, and for purposes of examination drop references to antitheses between subject and object, even mind and physical things, as if they were not, the central principle of idealism appears in a new light. "If," as Sheldon has said, "consciousness is reduced to a relation or function of something else, that relation, etc., is still present and influential." [20] It is not something *to* which a "given" is presented, but itself *an aspect*, with more or less holistic import, *of* a neutral given. Translated into these terms, the idealistic persuasion (cravenly abandoned by many) [21] that presence in the knowledge relation makes a difference to the existential status of the thing known, now becomes the thesis that the "whole" is logically prior to and determinative of the "part," and that parts, externally related and additively considered, can never be brought together to make wholes of the "given" type. Thus a doctrine associated with idealism is its real foundation, as that which is basic to realism and not adjunctive is the proposition that parts are prior to and determinative of wholes. To this antinomy others, not here to be specified, reduce from the viewpoint of a radical empiricism and relativism, adequately provided with an honest neutrality concept.

But this is to anticipate some further examination of that situation resulting from James' "short and easy method for disposing of dualism," and that can not be undertaken here. At any rate, James, by his failure to recognize that the elimination of consciousness as awareness did not affect that which was basic to its supposed function, merely shifted the scene of conflict between empiricism and its hereditary foe, idealism, leaving that which was important in its epistemology intact, though neglected and soon to be obscured by the dust of other controversy. He did not play fair with his old enemy. This, we have said, in part accounts for those exclusively analytic and pluralistic tendencies that have since dominated the philosophies which hark back to James' insights. If this is true, we may at least entertain the thought that a reconstructed neutrality concept might substitute for the present asymmetry of methodological

[20] *Strife of Systems and Productive Duality*, p. 181.

[21] For example, "There are few idealists to-day," says Professor Hocking, "who would say that 'things owe their existence to being known.'" *Types of Philosophy*, p. 348.

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values a recognized polarity of relational frames of reference, and place in altered perspectives both idealism and the philosophies of pluralism that have followed the one-way street to the limit.

There is here not the slightest disposition to discredit analysis [22] as the foregoing should indicate. By the one-way street the scientific and philosophical traveling public avoid much confusion. But if *all* signs point in but one direction, or if those which permit travel in the other convey the warning that in this direction lie only bog land, waste spaces, and dangerous encounters with an Error of Pseudo-Simplicity, it is easy to see that certain habitable localities will in time be depopulated while at other termini there will be congestion with which no regulations can cope. This appears to be the situation which some are facing to-day in several of the physical sciences. Perhaps it is the situation which Mr. Urban and others find in philosophy. Since he refers it to "a too thoughtless worship of radical empiricism," [23] the homeopathic principle, popularized as "Like cures like," should be explored for a remedy.

C. V. Tower.

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OUR CONSCIOUS STATES PICTURE AND APPREHEND OUR NERVOUS PROCESSES [1]

A Hypothesis

As all our theories of the interrelations of mind and matter are more or less unsatisfactory, it may be worth while to present a proposal that is new, as far as I know.[1a]

There is, I think, substantial evidence in support of the hypothesis to be proposed, and more plausibility in it than may at first sight appear, but I also place some reliance on its pragmatic service in solving some basic puzzles.

The Hypothesis

Various happenings outside the human body, acting through chains of intermediaries, stimulate processes in our nervous systems;

[22] Dread that such an attitude may become prevalent has even found its way into popular magazines. See, for example, P. W. Bridgman: "The New Vision of Science," *Harpers Magazine*, No. 946 (March, 1929), p. 451.

[23] "Modernism in Science and Philosophy," *Journal of Philosophical Studies*, Vol. V (April, 1930), p. 244.

[1] Owing to the recent death of Professor Mezes, proof of this article has not been read by the author.—Editor.

[1a] While I studied and taught philosophy and psychology for many years, I have done neither during the last two decades, and have, indeed, for the latter period, been able to read but few books and articles on the subject; my terminology may well be archaic.

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various other happenings within the body similarly stimulate other nervous processes; and our nervous systems themselves spontaneously set up processes. There are thus types of nervous processes with three different origins going on in our nervous systems. Whether the hypothesis now to be set forth is concerned with processes in the entire nervous system, including sensory and motor nerves, only with processes in the brain and spinal cord, only with processes in the brain, or only with those in parts of the brain, need not be discussed. For convenience, I shall assume provisionally, and without prejudice to change if necessary, that the hypothesis is concerned with all nervous processes.[2]

The hypothesis I propose is, that our conscious states, our feeling, thinking, and willing, picture and apprehend, have a vague and blurred but serviceable knowledge of our nervous processes. Otherwise stated, our conscious states are undetailed replicas, imperfect but revealing motion pictures of our neural processes. Thus consciousness "sees" nerve impulses much as the impressionist painter sees field and forest; knows them much as we know the overtones in the notes of the bass viol.

The Evidence

The best presentation, and analysis, of evidence for the hypothesis with which I am acquainted is to be found in Dr. E. B. Holt's contribution to *The New Realism,*[3] though he, curiously enough, balks at the conclusion that follows, as it seems to me, all but irresistibly from his analysis. He does so for the reason, I suppose—at least I can find no other reason—that the conclusion runs counter to the main thesis of his *Concept of Consciousness.* But he draws from a rich scholarship, his analysis is sharp, and his reasoning very telling. Here I can give only a few extracts and some comments.

He adduces strong evidence, drawn from Sherrington, Rayleigh, and L. T. More, in support of the position that (in Sherrington's words) [4] "the number of separable excitatory states (impulses) engendered in a nerve-trunk by serially repeated stimuli corresponds closely with the stimuli in number and rhythm," and shows, after Brentano,[5] that our sensations are not mere simple unanalyzable qualities, but are complex entities, forming, in large measure at least, after familiar mathematical analogies, continua within modes, and even, though less completely and clearly, a continuum throughout

[2] It is possible that processes, or some processes in all living matter, especially in lower organisms, are involved. But this is not the place to enter into *that* discussion.

[3] Pp. 322–355.

[4] *The Integrative Action of the Nervous System,* pp. 42–43.

[5] *Untersuchungen zur Sinnespsychologie,* Leipzig, 1907.

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the sense realm; and after this introduction, he comes down to the subject-matter here immediately pertinent. And first he gives a masterly analysis and exposition of the sensations excited by a series of light touch stimuli given at an ever increasing rate, which I wish I could transcribe in full. From the first a form-quality in all its uniqueness is experienced, consisting of at least the following interwoven elements, distinct taps, their succession, their rhythm, and their density (number of taps per unit of time), the last being the integral aspect of the quality. As the rate increases the form-quality changes steadily, and towards three taps per second its integral aspect *approximates* roughness, and begins to encroach on the tap sensations and the easy apprehension of their number. As the rate continues to increase, the apprehension of number of taps grows more and more difficult and is gradually replaced by the mere sense of succession, the apprehension of roughness, which has meantime become definite, growing *pari passu,* and encroaching increasingly; until, when the taps attain a density of about 600 per second, awareness or succession dies down, and the feeling of roughness has grown into a distinct quality "in its own right." As the "rate of tapping becomes still faster the quality of roughness changes continuously towards the quality of smoothness (just as in the spectrum red changes to yellow), until eventually it runs its gamut and becomes the steady quality of continuous touch."[6]

What this means should be plain enough. As Holt puts it,[7] "The experience of the tactual rhythm shows that time-division and number (Anzahl) of taps per time-unit are distinct though inseparable parts of the sequence, and that this *latter* feature *is* just the quality of roughness." I could ask no more. If Holt is right, and he marshalls a most impressive array of evidence, our hypothesis is established *for the case of roughness. It is* the density element as apprehended by us in a blurred way, in a tap series some 600 and more per second; time division, succession, rhythm, etc., having all dropped out, as Holt holds, because our time-sense is inadequately acute.

Next let us turn to audition and color vision, also discussed by Holt.[8] "The precisely parallel experience is to be had in the field of audition where a slow sequence of faint thuds or hisses passes over into a musical pitch. Here, too, there is a rate at which the sound sequence and pitch are experienced together, as distinct but inseparable. Here, too, careful scrutiny shows that the marked-off time-intervals are time perceptions, while the repeated hisses *are* the quality of pitch. . . . The parallel experience can be had in vision

[6] Holt, *op. cit.*, p. 345.
[7] *Op. cit.*, p. 345.
[8] *Op. cit.*, pp. 345–346.

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where an intermittent color stimulus is seen with increasing rate of flicker. At first it is succession without the flicker quality, then succession and a form-quality of flicker, then less obvious succession and more distinct (form-) quality, then the quality of (rough) flicker, then the quality of smooth flicker, then the end. . . . The plain lesson of all these cases is that what we call secondary qualities are in truth form-qualities, simply psychic entities in temporal organization (rate of sequence) and we are tempted to view them as qualities instead of form-qualities because for all but the most absurdly low rates of succession the time sense is inadequate to its task. The successive 'aspect' is unperceived while the multitude 'aspect' (it might be by mere summation) gains on attention. The time-sense throws over its duty so preposterously early that it is no wonder that for the upper range of pitches and for all the colors every trace whatever of a form-quality should elude the introspection."

Thus we would seem to witness the very emergence into being of three types of sensation, to uncritical observation "simple" qualities, but in fact complex, roughness, pitches, and colors. The cases of chemically-excited sensations and of feeling and striving are not so clear. But they will no doubt fall into line if these three more difficult cases are adequately explained by the hypothesis, as they seem to be. Meantime introspection reports that sensations and ideas pass into associations and/or reactions; and histology reports that nerve impulses pass from nerve centers to nerve centers and/or into motor nerves. Here again conscious states picture nerve processes. Moreover, before the three sense series blur they picture the neural series with fair accuracy.

Sidelights

Holt, however, is not quite clear as to just *what* elements blur together, when our time-sense defaults, and appear in consciousness as sensations such as roughness, pitch, and color; at times he writes of them as nerve impulses packed tight in time, at others as elementary sensations (of which we are never distinctly aware) similarly organized. I think, however, we must conclude that the latter is his definite and deliberate opinion, for he says,[9] e.g., "I have not said, be it noted, that the density-factor of the nervous impulse is the secondary quality: it is the density of the series of some relatively primitive sensation which *is* the secondary quality" (italics his). In this view I am inclined to think him mistaken.

I am also compelled to differ from Dr. Holt when he writes,[10]

[9] P. 352.

[10] *Op. cit.*, p. 353.

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"Consciousness, whenever localized at all . . . in space, is not in the skull, but it is 'out there' precisely wherever it appears to be" (italics his). And he quotes from Berkeley, with approval, "The rose is really red." To this, if I understand Holt, there are many answers, but I shall content myself with one. The incipient or complete default of our time-sense, itself based, no doubt, on some physiological defect, is, according to Holt's arguments, a condition precedent to the apprehension of color (or roughness or pitch). Is it conceivable that the rose has such physiological mechanism, or the sunlight and water vapor that stimulate in us the rainbow? And, of course, if I am right in holding that sense qualities are rough replicas of nerve processes set up by series of stimuli falling very rapidly on sense organs, these processes must be in the skull, or, at farthest, within the nervous system.[11]

But, I need hardly say, my criticism does not imply that we do not and can not "mean" and "know" the rose or its color, more or less accurately. We can and do mean and know outer objects themselves, not immediately, but mediately, by means of the familiar processes of representative perception, which is a corollary of the hypothesis under discussion. Nor does the criticism mean that the rose is not red, nor the violet blue, *for practical purposes.* They are and, as long as conditions are favorable, will be thus colored in the representation, the schematized pocket edition of the macrocosm, we carry around to help steer our course. But, according to the best scientific hypothesis so far established, i.e., to our best approximation to truth, the rose *itself,* the macrocosmic rose, is *not* red, nor the violet blue.

When I was a student of philosophy and psychology, it was commonly said that material objects occupied both space and time, while mental states occupied time only. My own introspection has always contradicted the latter statement. As I write, my mental processes are certainly not going on in the Island of Yap; they are proceeding in Tucson, Arizona, before and above a certain desk. Moreover, I am distinctly aware of my *thinking* as proceeding in and about the upper part of my brain, and I am inclined to say that it has some bulk. As to sensational experiences, my general sensibility is undoubtedly bulky, and the shape and position of my body, in a vague and clumsy way; the minor special sensibility clearly is, at least, located; touch is located and is extended; while sight is stereoscopic, and appears to penetrate far beyond the body surface as represented in consciousness. Indeed sight and touch and locomotor sense (sense of successive positions) hold to-

[11] In this criticism I feel on shaky ground, only, however, as to my interpretation of Holt's *Concepts of Consciousness,* which it takes more time than I can command to understand.

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gether as a garment and its lining, in fact coincide spacially. The whole inner scene seems to be a microcosm, more or less accurately representing and corresponding to the macrocosm that contains and surrounds me. And it is the microcosm that we sense; the macrocosm is only inferred, except in the case of surface touch. If the experience of others confirms mine, all this supports rather than opposes the hypothesis.

Nor is it true that the hypothesis merely accentuates and slightly extends parallelism. It insists that the psychic, because of parallelism, gives a serviceable and significant knowledge of the physical; immediately of our nervous processes, mediately of the outer world that our nervous processes ape; indeed this is the *only* knowledge we have of the outer world; even when it takes the form of physical science it is of this type.

Pragmatic Evidence

I believe the hypothesis, with an addition to be set forth presently, can be shown to work, to be useful. The whole of our mental activity, the whole of our practical life, is based on the assumption, irresistible, except in our deliberate and determined sophisticated moods, that outer and inner bodily happenings affect and stir up our *mental* processes, and that these processes, feeling, thinking, striving, willing, stimulate and guide our bodily action, and thus affect things without us,—that it is *these* human powers that have transformed crude nature, and surrounded us with the marvelous and stupendous creations of civilization. If we really denied these basic assumptions, *if we acted as if they were false,* all mental activity would cease, all intelligent bodily action would cease, with death in the near offing, all scientific thinking would cease. Of course we do nothing of the kind. We give lip service to the denial, and go on acting as if it were not.

And yet there is no scientifically entertained hypothesis that squares with our irresistible belief and our universal practice. On the contrary, as scientific thinkers, we are only entitled to deny either body or mind, or call one of them illusory; or else to adhere to the sophisticated absurdity that mind is an ineffective epiphenomenon, or that the two run ever parallel, with "No thoroughfare across" written over them! I am unwilling to subscribe to this resourceless bankruptcy of thinking. Far better to give mental hospitality, and a fighting chance, to any theory that offers a way out of this impossible *impasse.*

Matter is, of course, something more than electric charges. Montague calls the "something more" its "inner being," C. A. Strong its "private life"; it might also be called an uncommuni-

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cated complement, as the chain of causes through which matter affects our senses is not so fashioned as to carry any information concerning its nature. *But this inner being of electric charges, and of their combinations and recombinations can, I hold, most naturally and helpfully be so conceived as to enable it to combine into and form the conscious life we experience.* This is the addition promised above, and it is a tall order no doubt. But why not? Matter, as outer reality, in an early phase made up of electric charges, combines and recombines till it forms our bodies. Why should not the inner aspect of these energetic charges build up into our energetic minds and spirits? Is not that, with our present knowledge, a very good way of accounting for our minds and selves?

This, then, would seem to be the picture. The concrete fact is mind-matter. Either without the other is as unreal as the grind without the cat. And coëxisting continually as one undivided concrete entity it would seem that there must be interplay between them; catalysts furnish an analogy. Once admit that mind apprehends physical processes and the alleged chasm is bridged, and mind can as easily *affect* matter. In our own case, speaking roughly, matter gives mind its data, mind gives matter its direction.[12] If mind had been useless, in place of varying concommitantly with matter, evolution teaches that it would long since have been sloughed off. What the interplay may be in the case of simpler, especially of inorganic entities, it would at present be bootless to surmisé. But on the basis of the hypothesis, and the addition herewith presented the view of the interplay between mind and matter we always in fact practically hold to is justified and explained.

However opposed it may be to certain preposssessions, natural or artificial, the hypothesis under discussion does offer a way out. As long as mental processes are obtruded from the world of real objects, into an insulated world of their own, there can, of course, be no commerce between the two; matter *must* be blind, mind ineffectual. But suppose that the alleged abysmal difference between them is based on oversophistication, that it is an exaggeration, a reification of their undoubted and important differences; suppose that mental processes are an integral part of the real world, and that they constantly catch neural processes in the very act of feeling, thinking, or striving; "see" them vaguely, to be sure, but definitely enough to distinguish

[12] J. S. Haldane, in a letter to the London *Times*, May 6, 1929, puts it this way: "The whole of what on a superficial and partial view, may appear as mere physical or chemical mechanism in a living organism is found to be integrated or coördinated in a manner of which there is, and can be, no mechanical explanation; and it is here that biological interpretation differs essentially from mechanical interpretation." Coördination of course implies striving and purpose.

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and take in the countless phases and shadings consciousness reveals—then our irresistible belief and our universal practice come into their own. We are no longer paralyzed with the obsession, that our feeling, thinking, and willing may be but the play of ghosts with shadows. The whole scene springs into life. The body is a-tingle with sensations stimulated from within and from without; and on the basis of these sensations, mind feels, considers, and has a part in deciding and determining bodily action. Indeed, mind, spirit, guides and dominates; the body is led and controlled. We men see before and after, think and act in the real world, just as we have always seemed to do.[13]

SIDNEY E. MEZES.

ALTADENA, CALIF.

BOOK REVIEWS

A Modern Introduction to Logic. L. S. STEBBING. New York: Thomas Y. Crowell Co. 505 pp.

It is extraordinary how logic, despite the thinness of its content as presented in the average textbook, has held its place in university education from the Middle Ages onward. Logic has been tenderly, reverently, almost superstitiously preserved, and passed on from the hands of one generation of university dons to the next, in almost exactly the form that Aristotle gave to it. As in the Middle Ages, logic is still a sort of philosophic ritual through which every initiate into academic philosophy must pass: he must be baptized in the name of the syllogism and the three laws of thought. And to the layman, logic holds some mysterious, remote promise of "how to think properly."

But what teacher, and what student, has not experienced his hour of bitter disillusionment over it all? No matter how one may embroider on the logic of the past, no matter how one may inflate it with religious, metaphysical, psychological, sociological, or scientific ideas, it all comes down to a few poverty-stricken principles, which present no real picture of the richness of the forms of thought, and which everybody knew already without going to the trouble of studying logic. It has always been the side-dishes—religious and moral advice in the case of the famous "Port-Royal Logic," cosmological speculations in the case of Hegel and the English idealists, psychological observations in the case of the pragmatists—which have supplied the real meat in books on logic. The main course

[13] The hypothesis here presented is similar to that penetratingly set forth in C. A. Strong's *Why the Mind has a Body,* as I remember it. But his book is unfortunately out of print, and at this distance I can not lay my hand on a copy for exact comparison.

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itself has consisted of such bare bones as "Socrates is a man, men are mortal, therefore Socrates is mortal"—or "if all men are mortals, some mortals are men." The academic dust lies heavily on logical textbooks, and there is only one way of blowing it away: to let in the fresh air of modern logical ideas, which are the products of the last seventy-five years and which are now only beginning to trickle down into textbooks. I refer to the quasi-mathematical developments of logic, beginning with George Boole in the middle of the last century, and extending through the work of Peano, Frege, Peirce, Schröder, Whitehead, Russell, and others, down to the present day.

Miss Stebbing's *A Modern Introduction to Logic* is therefore a highly valuable book, for it presents to the elementary or intermediate student this newer and more vital logic. The book falls into three parts, the first dealing with formal or deductive logic—beginning with a discussion of language and symbolism, passing on to the study of propositional relations, the syllogism, compound arguments (hypothetical and disjunctive, dilemmas, and so on), to the more general ideas of the modern logical calculuses of propositions and classes, and closing with a general chapter on inference and implication. The second part discusses scientific method and induction; and the third part, certain miscellaneous aspects of logic—definition, abstraction, persuasion and conviction—ending with a brief sketch of the history of the subject. The author declares in the preface that her purpose in writing the book was "not to take the student very far into mathematical logic, but only to enable him to realize that the principles of symbolic logic . . . are exemplified in everyday reflective thinking no less than in mathematical deductions. I have not sought to write an *introduction to symbolic logic;* my purpose has been to emphasize the connection between Aristotelian logic and symbolic logic, and thus to write a text-book which will include as little as possible that the student has subsequently to unlearn, or for the teaching of which the modern logician feels it necessary to apologize."

The book is not easy. Perhaps it is impossible to present modern logic in a form that would make it suitable for students who have not read a moderate amount of philosophy. Yet the teacher of an intermediate course in logic would do well to discard his more antiquated texts for this one. It leads the student immediately into the stream of contemporary logical ideas without unnecessary detours into the past, and avoids all sorts of questionable philosophical side issues for logic itself. Miss Stebbing has the gift of clarity, she knows the subject, and puts her points—in most places—with extraordinary acuteness.

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The author is steeped in the "Cambridge school" of logic, the works of Russell, Whitehead, Broad, Johnson, Moore, and, of course, much of the most important work has come from this school in the last twenty years. But whether this immersion in the extremely technical and sometimes very special discussions of the Cambridge logicians has been an advantage to Miss Stebbing in giving a synoptic view of logic is a question. Where she breaks away from these discussions, as in the second part of the book, and in the first two chapters, she is at her best as an introductory writer, and presents the ideas in a way that would cause them to penetrate beneath the skin of the intelligent upper-class student. But in other parts of the book, those that deal specifically with mathematical logic, she seems to me to have given an excellent critical account of these Cambridge logical discussions—which are important contributions to contemporary philosophy—at the expense of the simpler, more elementary aspects of symbolic or mathematical logic. Thus the book has a sort of double personality: in places it is clear, concrete, and really a textbook for the more intelligent upper-class university student; and in other places it is technical and highly special in its choice of topics—and really a summary and criticism of the debates of the Cambridge logicians.

For instance, she introduces modern logic through the study of descriptions, expressions of the form "the author of Waverly," and devotes many pages to the subtle question as to how these phrases can have meaning when there is no object to which they refer, and as to why they are "incomplete symbols." But when she arrives at the center of the subject, at the calculus of propositions and classes, she omits to show how the theorems are derived from the primitive propositions; that is, omits the whole question as to how logical propositions are "proved" with reference to one another. This is unfortunate, and causes her exposition of the central portions of symbolic or mathematical logic to be truncated. Nor does she discuss at any length the important question of the relation between these two calculuses, of propositions and classes; in fact, she uses a symbolism which confuses rather than distinguishes them.

It is no easy task to present modern logic, first of all because the essential ideas must be separated from the subtle, debatable issues by which they are surrounded in the works of writers such as Whitehead, Russell, and Johnson. It is very easy to get lost in by-paths, and one needs a strong sense for the main road. In *Principia Mathematica*, the bible of modern logic, the topic of descriptions and incomplete symbols is important because the authors wish to avoid the assumption of classes, in their "deduction" of pure mathematics from pure logic; but this is a very special point.

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Again, in the chapter on Inference and Implication, I get the impression that the author has been led astray into a discussion of her points of agreement and disagreement with Russell, Johnson, Moore, and others, and has forgotten her primary purpose—to present the elements of the subject to the student. The discussion here, as in the case of the theory of descriptions, is legitimate and intelligent enough, but its effect in a textbook is to throw the material into wrong proportions. For instance, following Johnson's notion that inference has "epistemic" as well as "constitutive" conditions, she says that when q is inferred from p, p must be known to imply q without its being known that q is true. According to this theory, no inference could be performed twice over, unless it had been forgotten in the meanwhile; nor could an inference which "explained" a given proposition be a real inference. If I have a bad pain in my head, and then suddenly remember that I stayed up late last night smoking cigarettes and talking; hence, that I have a bad pain in my head, this is not an inference. I miss also, in this chapter, any reference to "intensional" logical relations, though Moore's "entailing," which is obviously intensional, is considered.

Miss Stebbing naturally sees the defects in the older logic and exhibits its thin, artificial quality. Yet she is well balanced in her judgment of it. She says, "throughout the book emphasis is laid upon the continuity of some of Aristotle's doctrines with those of the mathematical logicians." It would be easy, but not profitable, in a review of any book on logic to pick out small points of disagreement. After all, logic is a growing science; new blood has been infused into its veins—and everything growing is uncertain of itself. University teachers can be thankful to Miss Stebbing for having given them a textbook that is alive, not by virtue of extraneous material that has nothing to do with logic, but through the new free spirit which has entered logic itself in the present day.

RALPH EATON.

HARVARD UNIVERSITY.

Erkenntniskritische Grundprobleme der Relativitätstheorie, Quanten und Wellenmechanik. ERHARD BRÜLL. Breslau: Otto Borgmeyer. 1929. Pp. 66.

Dr. Brüll's little volume of sixty-odd pages, printed with generous margins all round, is a somewhat frail underpinning for the impressive, not to say staggering, title it bears, and for a table of contents which lists a preface, an introduction, five chapters and a conclusion. As one might suspect from the unbalance of these proportions, it can not do more than make the most cursory mention of any of the problems it promises to discuss. Its avowed purpose is

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to examine the remains of Kantian, Neo-Kantian, and Neo-realist epistemology in the light of the new physics. To this end the author gives us twenty-six pages of the briefest notes on very profound theoretical matters such as the curvature of space, the relation of gravity to electricity, the geometrical interpretation of forces, contemporaneousness, the constancy of light-velocity. His statements are so laconic that they bear somewhat the character of personal memoranda. Here is the beginning of a typical paragraph:

> The general theory of relativity, through the attempt to combine gravitation and electricity in a single metric system of the four-dimensional continuum, has suffered a reformulation at the hands of Weyl, Eddington, and Einstein. Though this combination was not attainable through Riemann's geometry, the way was opened by a further development of the latter. The newly added invariants and tensors are to be tested for their scientific value, i.e., we must inquire to what extent it is possible, by means of the mathematically more intricate geometry, to embrace the laws of the gravitational and electromagnetic fields.

Such a catch-word review might suffice to bring all sorts of things to the mind of a physicist, but to the reader for whom the book is intended it is perfectly meaningless. Dr. Brüll states in his preface that he has avoided mathematical formulae and employed common language in their stead in order to make the book accessible to readers not versed in higher mathematics. Evidently he shares in a very prevalent opinion that the esoteric character of mathematics lies entirely in its symbolism, not its concepts. This is, indeed, a common belief; hence the deluge of "popularizations" of Einstein which strains the contemporary book-mart. Mathematicians, presumably, use algebraic symbols to express propositions which could just as well be stated in plain language, because they—the mathematicians—enjoy the tang of added difficulty. To me it seems simply preposterous that a person incapable of reading algebraic symbols should be able to attach any significance whatever to the paragraph quoted above. What can the references to Riemann's geometry and its short-comings and later modifications mean to him? What does he know about metric systems, old or new? And what meaning is he likely to attach to the "pseudo-Euclidicity" discussed on p. 23, or the "elimination of the gravitational field"?

Now, leaving aside these serious faults of presentation, let us see what philosophical implications of the new physics the author would call to our attention. After his somewhat stenographic inventory of the new physical concepts, he runs through an accurate analysis of these concepts into their logical presuppositions and their empirically dictated modes. The upshot of his reflections is that the essence of Kant's epistemology (an essence presented in greater purity by the Neo-Kantians) is not incompatible with modern

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physics. His distinctions are clear and correct, and the moral he draws seems to be sound. There is, however, nothing new in it; it has been stated by Natorp, Cassirer, and others; there really seems to be no reason for writing another book about it, unless it be a great and detailed work running back each concept to all its ramifications in logic and mathematics.

Dr. Brüll's little exposition is a defense of old concepts rather than an exploration of new ones. His title is misleading; he is not concerned with the epistemological problems of Relativity, Quantum-theory, etc., but with the epistemological problems of traditional philosophy *in spite of* Relativity and all its various relatives. His theories are not born of modern science, but are adapted to it. He has kept his epistemology and accepted the new physics, as we keep the Old Homestead and put in the modern plumbing. In a well-built house, this can be done; whether or not it is worth doing, is a matter on which the Old Homesteader and the plumber may legitimately hold diverse opinions.

SUSANNE K. LANGER.

RADCLIFFE COLLEGE.

Hinduism Invades America. WENDELL THOMAS. New York: The Beacon Press, Inc. 300 pp.

In a concise, clear style, not always free from irony, Doctor Thomas gives an account, historical and factual, of the entrance and spread of Hindu ideas in America. Individuals and movements are studied, the methods used by the various cults are described, and the effects of these efforts are appraised. The result is an informing study and one that will assist the reader in forming an estimate of the situation with reference to "invading" Hinduism. The author shows considerable skill in stating principles and teachings in summary fashion. While such procedure has its faults, still, it is exceedingly useful in such a case as this. Bearing this last sentence in mind, the second chapter, "Classic Vedanta, the Essence of Hindu Faith," is to be commended.

The chief types of the active promotion of Hindu thought in America are: (1) that which is best known through the fame of Vivekananda, representing the Ramakrishna movement and Vedanta philosophy; (2) that which centres about Yogananda's "practical" cult; (3) various cults, cultural movements, the work of Hindu lecturers, professors and students, and of non-Hindu propagandists, none of which are of great extent and all of which are largely independent of each other; and (4) the influence of the universities where Indian studies are carried on, and, largely in prospect, of the International School of Vedic and Allied Research.

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Doctor Thomas gives considerable attention to the influence of Indian thought upon European philosophy from the most ancient times. From the point of view of his main thesis, the case is overworked.

The author explains this Hindu movement into the West from two points of view. First, "a world-wide struggle for cultural influence is now taking place." Moreover, "this modern expansion of Hinduism is just part of the great modern awakening of Asia." And, in the second place, he quotes a Hindu, J. S. Rao: "The Western frame of mind is so peculiarly promising for the reception of Indian ideas," that "it will be our own mistake if we do not make India the teacher of the West as it has already been of the East." The writer goes on to say: "The presence of Hinduism in America in the form of purely religious organizations is due primarily to the desire of certain American Christians for deeper and wider knowledge of the world's religious thought. The Hindu preachers in the United States are not so much missionaries as 'inductionaries.' The stimulus is American, the response Hindu. . . . The swamis come to America because of Christianity and Western culture rather than because of Hinduism of Eastern culture."

Doctor Thomas gives three reasons for the persistence of Hindu cults in America: their claim of universal authority, which is both novel and supreme, consequently very impressive; their cultivation of the individual rather than society, with emphasis upon self-culture and meditation; and their insistence on the essential oneness of the individual with God, which is universally satisfying.

Of the membership of the Ramakrishna movement in America, the author's investigation shows that "almost all of the group were religious wanderers, restless souls who passed through many 'borderland' cults till they found Vedanta. And half of the few church members who joined the Hindu cult without wandering, have now left their churches, in spite of the fact that Vedanta demands no severing of former church connection, and even claims to support all cults and sects." And he says further: "In the Vedanta group two kinds of people are prominent: those who have just broadened their views, and those who have adopted the Vedanta cult as their very own. We meet with the same two kinds in Yogoda, with the addition of a third, which is still actively Christian. Thus in the Yogoda Sat-sanga Society of America we have three classes: orthodox Christians, pure Yogodans, the spiritual pilgrims who have wandered through the 'borderland' cults, such as Theosophy, Christian Science, New Thought and Unity. Both Vedanta and Yogoda have much in common with these American cults, but Vedanta harks back to conservative Hinduism, while Yogoda leans forward toward liberal Christianity."

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The study forces the conclusion that none of the types of movement noted above, except the fourth, represents anywhere near a thoroughgoing presentation of Hindu thought, either Vedanta or Yoga, but well diluted, Americanized modifications of it. In the second place, the book provokes the question whether these movements constitute an invasion. Aside from the fourth type of activity outlined above, which after all is but a mild form of infiltration, the better description for these activities would be "forage." Lastly, the impression is left that heretofore the extent and effectiveness of Hindu propaganda in America have been overestimated.

GEORGE W. BRIGGS.

DREW UNIVERSITY.

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The Journal of Philosophy

SUPERSTITION

To one whose professional field of study includes the ways of life of the primitive or simple peoples of the world, exactly what is to be termed superstitious and superstition is a question of greater moment than it may seem to professional philosophers. A vague differentiation of the superstitious from the rational has for the most part availed, because all issues have been drawn in the universe of discourse of our own culture, and between credulous, ignorant belief and the reasoned thinking of the logically trained. In so far as the intellectual life of other cultures, particularly the primitive, have been drawn into discussion, there has been tacit agreement that unless rationalism can be shown to dominate them, these alien realms of discourse are superstition. Ethnologists as well as philosophers have assumed this attitude, partly, I think, because the ethnologists have uncritically carried the distinction, or lack of distinction, over into their subject-matter. Particularly have ethnological compilers and theorists, such as J. G. Frazer, construed the beliefs and practices of primitives as superstitution. Thus *Totemism and Exogamy* is subtitled: "a treatise on certain early forms of superstition and society."

"What is religion to you is superstition to me," represents the undiscriminating attitude toward superstition in its extreme form; it results in ignorant prejudice toward the beliefs of others, accompanied by an unwillingness to acquire requisite knowledge and understanding.

The account of superstition in Hastings' *Encyclopedia of Religion and Ethics* illustrates, I think, some of the difficulties which this undiscriminating use involves. Says Alice Gardner: "We group together as superstitions a number of beliefs, habits and fancies, tribal and individual, which we regard as not being founded on reasonable conceptions of the world and of human life, necessities and obligations."[1] What is such a "reasonable conception"? Who is to judge its reasonableness and by what standard?

Most minds employ as a standard of the "reasonable" the naturalistic or scientific view of the world. Thus all interpretations of nature which are "supernaturalistic," or better, "pre-naturalistic," are unreasonable. This seems to be the intent of the Gardner defini-

[1] Hastings' *Encyclopedia*, volume 12, p. 121.

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tion, which therefore implies the proposition that all primitive cosmologies are superstitions.

But this attitude toward the reasonable is the overt expression of a deep-rooted bias of both philosopher and ethnologist.

"Every superstition is a little science, inspired by the desire to understand, to foresee or to control the real world." [2]

To the philosopher the important characteristic of superstitious thinking is that it does not yield true philosophy. The generous philosopher goes further, however, and admits, as Santayana does, the good intentions of the superstitious mind. There is a highway to true philosophy, which is rationalism, and superstition represents the first tentative grading of the roadbed through the wilderness.

Ethnologists have not only utilized the same loose meaning of superstition as philosophers, but many hold the same bias. An anthropologist who, in the light of his own personal field experience, critically reconsidered the basis of most ethnological interpretation of primitive customs, found the underlying hypothesis to be that "the beliefs of savage peoples are due to an attempt on the part of primitive man to explain to himself the phenomena of life and nature." [3]

Rationalism, as we know it, is conceived to have evolved from attempts to explain nature and the world, because man is curious. Primitive man is still in the earlier stage of human thinking, in which rationalism is crude and tentative, and superstition its halting product.

The proposition that all primitive belief arises from the attempt to explain nature can not be defended. Primitive religion as any other phase of any human culture is a historical product determined in its immediate form and character by a bewildering array of causes. Even in the special case of an individual utilizing part or all of the belief of his society as an explanation of nature, no facts as to origins are established. Actually, whatever tendency to attempt to explain nature may be in man, the explanation tendered must derive its essence from the culture into which a man is born and in which he lives. The French argument that the bent of the individual mind is determined by the "collective representation" of which he is part raises the same issue. This interrelation of a world view with the cultural configuration to which it belongs is the essential fact.

Santayana recognizes this essential when he states "what religion a man shall have is a historical accident, quite as much as what language he shall speak"; [4] but I do not think he has carried

[2] G. Santayana, *Reason in Religion*, p. 22.
[3] A. R. Brown, *The Andaman Islanders*, p. 232.
[4] G. Santayana, *Reason in Religion*, p. 5.

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out the full implication of his proposition. If a man's religion is basically fortuitous, how can he be said to be attempting rational explanation of the universe? By multiplying numbers and speaking of the religion of a human group the difficulty is not avoided. Nor is it surmounted by turning to conjectural origins, since this merely involves the same situation at a remoter past time.

The truth is that in our culture rationalism is the dominant mode of thinking. It is a cultural pattern among ourselves to ask for reasons and explanations. This pattern may or may not be characteristic of another cultural setting. Before the world view of any people be classed as tentative or halting rationalism, it must first be established that the rationalistic search for explanations is its cultural pattern. To a great extent of primitive cultures this can not be done.

II

The usefulness of a term is limited by the clarity of the distinction it involves. If all of primitive belief and custom is to be called superstition it would be better not to use the term at all, because in that case it functions merely to restate that we are speaking of primitive thought and life which is *all* superstitious, rather than of civilized thought and life which is *partly* non-superstitious or rational. On the other hand, if it be recognized that when the term is used, the speaker has a feeling of some valid reference to a characteristic quality of a belief, a custom, a rite, etc., which sets it off from the non-superstitious, a clearer definition is called for. The proposition "all primitive custom and belief is superstitious" is not self-evident; and the nature of both primitive custom and belief, and the nature of superstition, must be critically examined before they are conjoined.

The Murray Dictionary defines superstition in general as "religious belief or practice founded upon fear or ignorance"; and specifically, "an irrational religious belief or practice," or "an irrational religious system."

Let us consider first the specific definitions. These involve us in the meanings of rational and irrational. If a religious *system* can be called irrational, it follows that the term "irrational" does not exclude the possibility of system. To speak of a religious system implies at once that a complex of religious ideas and beliefs, practices, rites, and ceremonies are interrelated in some orderly way. Symmetry and arrangement are affirmed as characteristic of that religious complex. To my mind the presence of such characteristics implies also the presence and exercise of intellectual processes which are orderly, although not necessarily disciplined.

If irrational does not exclude the idea of system, it follows that

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rational can not refer to and include only the idea of system; it has, in fact, a somewhat different reference. On the one hand, in its more limited meaning, it calls to mind the rationalism which dominates our own intellectual culture and which is bound up with logic. It implies in this sense that whatever is held to be rational has been arrived at by thinking which has proceeded within a universe of discourse defined by rules and principles previously laid down; by thinking which has accepted the discipline and limitation set by defined standards of thinking;—or, from a slightly variant viewpoint, what is held to be rational, however arrived at, can be justified in formal logical statements. On the other hand, the rational in a broader sense refers to the possession or exercise of reasoning powers without regard to a defined logic. In short, everything prelogical in a temporal historical sense, is not *ipso facto* irrational.

If we speak of *a* religious belief or practice as irrational, we deny that reasoning powers have been exercised in its intellectual attainment, but if we speak of a religious *system* as irrational, we can only mean that it is not rational in the narrower sense referred to above. The presence of system itself implies the past exercise of reasoning powers in some form. The isolated belief or practice, however, may well be held because of prejudice, or "fear or ignorance" in terms of the Murray general definition. Such traits imply at once that the belief or practice is held without sufficient knowledge to warrant or disprove. Ignorance states this at once, while prejudice implies partial knowledge, accompanied by an emotional unwillingness to extend and complete knowledge. Full knowledge would place the particular belief or practice in a larger nexus and its systematic interrelations would of necessity be explored. In so far as it was coherent in that larger whole it would be retained. It would then no longer be a matter of prejudice; the belief having attained its place in a system of belief, against the background of that system it would be rational.

In terms of the above considerations, I would define as superstitious a belief or practice which is isolated from a system of reference.

III

If a superstition be so defined, we can then consider an important aspect of superstition. In how far is a belief or practice superstitious in itself? Clearly, in terms of the definition, not at all: it is its isolation from a system of reference which qualifies it as a superstitious belief or practice. Thus the same belief or practice can be both superstitious and non-superstitious: It can be superstitious to one person, non-superstitious to another; non-superstitious to one person at one time, superstitious to the same person at a different time;

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superstitious to some men at one time, non-superstitious to other men at the same time; non-superstitious to all men at one time, superstitious to all men at a different time.

That these statements really describe the history of superstitions I think can be made clear by analyzing their implications.

In every human society, no matter how primitive or humble, there is a complex of religious beliefs and attitudes. In how far, in any and every human society, is such a complex a system? This is an involved question. I shall approach it by anticipating with several general propositions and then explaining the significance of these in greater detail.

The religious complex of any society is more or less systematic. The religious complex of a society is not equally systematic to all its members. In a primitive society it is rare to find the whole religious complex worked out as a system by any one member.

Furthermore, the religious complexes of a number of human societies are not equally systematic; and the degree to which any individuals systematize the religious beliefs and practices of the group to which they belong may differ from one primitive society to another.

That the religious complex of any society is more or less systematic needs little proof. Just as every language has a grammar because the use of phonetic complexes to convey meaning must be ordered to be intelligible, so the religion of any human group involves forms and patterns of behavior habitual to the group. But while a language has grammar, grammar does not imply the rigorous system of logic. Whether logic from a historical point of view be merely the refinement of grammar (of a particular language) or not, even from the former point of view it must be recognized that it is a refinement, not merely grammar carried over. Colloquial usage and speech, which constitutes the bulk of language, can not enforce linguistic distinctions and categories with any greater logical rigor than the untrained popular mind is capable of. Thus the grammatical structure of a language is never *a* system in the sense that formal logic can be a system; it is usually somewhat unsystematic, and it may involve more than one potential system. In the same way, the forces at work in determining the forms of a religious complex at any one time are many: They include the historical origins of those forms, the past surviving into the present; the contemporary influences of the beliefs and forms of other human societies upon those of the society under consideration; and the internal interaction of the individuals who compose the group. Thus there are many forces at work of different weights and characters, from whose interplay it is unlikely that *a* system will re-

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sult, and at the same time there is no particular force at work which makes for absolute systematization. Nevertheless it is quite impossible to find a complex of religious beliefs and practices of any society that is merely a miscellany: there are always interrelations of practice and belief; of sacrifice and concepts of sacred powers; of fetishes, amulets, etc., and the sources of revelation; of dance, song, etc., and the myth or tradition of their derivation, and so on. In the course of time such interrelation may reach very far, and the actual mechanism of worship in many societies is very complex.

In any human group individual differences are at work. Temperamental and personality differences determine the particular way of life of any individual in the primitive group as much as they do in our own society. The religious bent of the individual is just as much a factor in turning him toward the religious complex of his people as among ourselves. But in addition, in every society there are cultural forms which also determine the degree of participation of any individual in any special phase of his culture. Thus the child of a famous artist or artisan is far more likely to be in turn a skilled craftsman than other members of the community; the son of a priest becomes a priest in turn; the kin of a medicine man are the medicine-men of the next generation; the child of a famed story-teller will be found in his turn to know more stories and tell them better than his contemporaries, and so on. In part this is because of the greater opportunity to learn through close association; but in part also it is because knowledge and technique are valuable and prized possessions: they are not given freely to all, but transferred from individual to individual through a course of learning. The master requires in his apprentice a willingness to learn and some sign that the apprentice values what he is to learn, which usually takes the form of gifts or payment for the teaching. Naturally one prefers to teach those dear or close to one—one's own kin; but in most cases, if these are lacking or unworthy, more distant relatives are selected, and even non-relatives. In this way, in any generation, there is not only a general and specific division of labor, but there is a similar division of knowledge, and this is eminently true of religious or sacred knowledge. Every field worker knows that his chief reliance in unearthing the deep-lying sacred beliefs of a people, is not upon any and every member of the community, but essentially upon a very few individuals who have come in the course of time to be treasure-houses of such group knowledge—often, in a dying culture, upon one individual. It is also a matter of experience that those who know a great deal about the religious complex of their community comprehend the larger significance of what is systematic in it; while the partial knowledge of others usually means a grasp of miscellaneous parts of the whole, without integration.

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This situation is reinforced by the presence of priesthoods and priestly classes in many primitive cultures; and in such cases there is a tendency for the religious knowledge of the people to become more and more esoteric. At the same time, it will be more and more systematized in the hands of the few who control it. But it is practically never that the whole complex is systematically carried out by one man alone.

Furthermore, even if an individual were to do this, it would of necessity be an individual out of touch with the exoteric thought of the community. Along with the development of an esoteric class who conceal religious knowledge from the people, goes a new development of exoteric belief. The people must, after all, participate in the overt religious practice of ceremony; they must hear much of the ritual. Even though effort is made by the esoteric class to hide meanings in veiled and symbolic language, the common people will strive to penetrate the veil. From such a source they have some inklings of the meaning of the esoteric religion, in part, of course, mistaken. Thus the belief of the exoteric classes is first of all a faint reflection of the esoteric ideology. But in the absence of orthodox interpretation, heterodox interpretation takes place, introducing often aspects of belief which are quite different from the traditional. And in all primitive communities there is always left to the exoteric classes the pattern of deriving sacred knowledge and belief from the powers directly, that is, by revelation, by vision and dream, and these experiences may influence exoteric beliefs without the intermediation of the esoteric. Thus an individual of the priestly class, even were he to systematize the religion as ordered by his class, can not integrate with it the divergent religious beliefs of the common people.

To the extent to which two societies differ in that in one culture the religious complex is in control of a priestly class, while in another the whole religion is relatively exoteric and shared by all freely, there is likely to be a difference in the degree of systematization. Specialists in religion will integrate as one phase of their specialized occupations; the common people do not to the same degree. In addition, the cultural patterns of the group themselves determine in how far the religion can be formalized. If in one culture any individual of any age can have a direct supernatural experience of his own, the content of such experiences is determined by a wider, more miscellaneous range of experience than is the case in a culture in which the pattern limits visions or supernatural experiences; and where traditional inherited religious materials are exalted by the culture far above the direct experience of any member, a still further limitation sets in. In terms of these relative

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limitations, the religious complex of the group can achieve a more far-reaching systematic integration.

If now superstition be defined as a belief or practice which is isolated from a system of reference, it will be seen that in a given community a particular belief which is part of an integrated system of ideas to the priest (or as his equivalent an individual whose knowledge is sufficient to give him a grasp of what is systematic in the religious complex of his community) is not a superstition as believed in by him; while on the other hand the layman who holds the belief isolated from its reference context may be said to believe superstitiously. We have then the situation of the same belief at one and the same time superstition in one man's mind and a rational belief in the mind of another—rational, it must be clearly understood, not in the sense of rationalism or the possibility of logical proof and statement, but in the sense of orderly reasoning.

The layman who holds the belief superstitiously may apply himself to the task of learning the whole religious complex. If he finds when he has grasped the order of the whole that the particular belief integrates in that order, he no longer may be said to believe a superstition. If he finds that it does not, and still holds the belief, he may be said to retain the superstition. In the former case it will be seen that what was at one time a superstition to an individual is at a later time no longer a superstition, although the actual belief has not altered, but has been merely given its place in the setting of its system of reference.

The reverse case is as clear. As the general system of ideas of a human community alters, many beliefs will survive, isolated from their contexts. When such survivals of beliefs are held by an individual in spite of their inconsistency with the dominant system of reference, he may be said to believe in superstitions. Thus the same belief is at one time non-superstitious for an individual, at a later time superstitious.

The same points can be made with reference to groups. A practice whose meaning is clear to the priestly class will be carried out ignorantly and superstitiously by the bulk of the common people.

Finally, the general proposition that a belief may be non-superstitious to all men at one time, and superstitious to all (or most) men at a later time, follows as readily. In the course of cultural change, isolated beliefs persist while the context which formerly gave them meaning disappears so completely that it can not be recaptured. In fact, from the standpoint here taken, most superstitions of the European culture complex are of just this character: At one time they were part of a system of reference, now as isolated survivals without relation to the rationalistic or naturalistic system of reference we employ, they are superstitions.

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IV

Two broad characteristics of superstition become clear.

On the one hand, a belief or practice held by an individual or group in any community, in ignorance of (or with only partial and insufficient knowledge of) *the* system of reference of the community ideology which gives it meaning and hence validity, is a superstition.[5] Two points must be made in reference to this characteristic. First, it is the dominant system of reference of the community which is called in question here; in our own culture, this would be the rationalistic or naturalistic mode of thinking, in a primitive community it would be the system of thinking which dominated their view of the world. There is thus no absolute standard: a primitive man can not be held to believe in superstitions merely because the total intellectual horizon of his culture is different in kind from our own rationalism. Secondly, and this is corollary to the first, even when in our own culture a specific belief is obviously part of a well-reasoned system of rational thinking, but is merely accepted as an isolated belief by an individual, his belief is superstitious and a superstition. This may be tempered by the consideration that full knowledge of the background is not essential where the characteristic quality of the background is grasped. Thus, Ptolemy was not superstitious, but most people who accepted his view of the universe were; and in the same way, many people who accept Copernican views to-day accept them superstitiously. But it is not essential that one trained in the meaning and character of logic and scientific method shall himself know the exact mathematical proofs of Copernican views to avoid the imputation of superstition; because it is the system of thinking of which the particular use of mathematics is a special case which is the system of reference.

On the other hand, superstitions are pre-eminently survivals. Most of the popular superstitions collected by folklorists are probably of this character, such as superstitions about numbers, black cats, phases of the moon, specific orientations of the stars. At one time these were probably not isolated beliefs but each was part of a system. With the disintegration of the system, each survives as a superstition.

Both of these characteristics are true of primitive and civilized

[5] While I refer here to the beliefs and practices of one cultural community, the spread of such beliefs and practices from individual to individual is wholly analogous to the process called "diffusion" by the ethnologist. Borrowed beliefs and practices which are the result of "diffusion" differ only in that they have spread beyond the borders of one cultural community; they have been borrowed from outside. Hence even when rational in the culture to which they are native, borrowed beliefs and practices are superstitions in the alien cultural setting into which they have been introduced until they have been integrated (if that be possible).

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thinking. But in connection with primitive materials, the fashion has been to follow the vague conception of superstition I called in question to begin with, and as a result a great deal that comes to us as primitive superstition is superstition, not because we are dealing with beliefs and practices isolated from a system of reference, but because travellers and ethnologists have reported only the isolated fact and never penetrated to the system of reference which gives the belief or practice meaning and validity.

An illustration may make this clearer. From a number of American Indian groups a superstition has been reported that one must not tell coyote stories in summer, because if one does, snakes will bite the teller and may cause death. This belief is held so strongly that most collectors of myths and texts when among groups with the superstition find it almost impossible to persuade able story-tellers (who are usually orthodox and conservative natives) to tell coyote stories for recording in summer. As the summer is the usual season of field-work this often works especial hardship on field ethnologists. Among most groups who believe this, the belief is of the identical form. I myself encountered it among a number of Siouan groups before working with the Pawnee. A young Pawnee friend said to me one day on my first stay among his people: "You know you can't tell coyote stories now." (It was the height of summer.) "Yes," I said, "I know." "I'll bet you don't know why," he countered, to which I replied, "Because snakes will bite you." "How did you know that?" he exclaimed in amazement, and was surprised to hear that other tribes had the identical belief. Among the Kitsai I had long arguments with an old woman, but could never persuade her that millions of snakes were not hovering in the long grass listening to what she told me, and ready to bite the bare toes of her unmoccasined feet if she yielded to my importunity and recounted a coyote story.

Only after a detailed study of the general tenets of Pawnee religion did I come upon the reference of this belief. I can here only suggest the problem.

The Pawnees knew a great deal about the stars. Many constellations were named, and some individual stars. Among others there is a Wolf or Coyote star, and two constellations called respectively the False Snake and the True Snake—probably our Serpens and Hydra. The Heavens are a vault, and only those powers which are on the under side of this vault are visible or knowable to man. These have a one-to-one correspondence with the things upon earth. That is, for every animal, bird, insect, etc., upon earth, there is a similar power above. Naturally the exact correspondences were only carried out for a very small percentage of the possibilities, but

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the implication is always that the generalization from these is true. Essentially everything upon earth is affiliated with, interrelated with, controls and is controlled by, its complement in the heavens. In this way the wolf or coyote is related to the Wolf Star, the snakes to the snake constellations. These constellations appear in the sky in Pawnee horizons as summer approaches. First comes the False Snake who is harmless, then the True Snake. It is with the appearance of the latter that coyote story-telling is forbidden, and with its disappearance in the opposite horizon months later that telling such stories becomes once more possible. There is a feeling that snake powers are in control upon earth while the True Snake constellation dominates the sky, that talking about the coyote and his accomplishments will be resented by the snake powers in control, and punished through the instrumentality of snakes upon earth. Each in its own season holds sway.

There is much more that can be said of this belief, and of the Pawnee ideology of which it is a part, but I think I have shown enough to indicate that in the minds of those Pawnees who are familiar with this complicated systematic reference of the belief about snakes biting coyote story-tellers in summer, the belief is not a superstition. It involves reasoned thinking, orderly inference in terms of the Pawnee view of nature and the universe.

At the same time, among many of the Pawnees, as in the mind of my young friend who was astonished that I knew the answer, it is a superstition, because they are unfamiliar with the ideology behind it, and many do not know such an ideology exists. Also, I believe that among a number of other tribes who hold this belief, it is fully a superstition because the system of reference is quite absent; although in such cases it may well be that careful study would uncover quite different backgrounds with which it has been integrated.

V

Throughout this discussion I have taken the position that a distinction can be drawn between primitive thinking and our own without calling primitive thinking irrational in the broader sense. That is, primitive man thinks and reasons, he uses analogies and associations; he identifies and discriminates. Thus if four colors are associated with the four semi-cardinal directions, and also four animals associated with those same directions, he will attempt, just as we would, to associate the respective color symbols with the respective animals. If a particular rite, such as the orientation in which pipes are lit in ceremonies, has no known significance among contemporaries, he will reason out its probable meaning in terms of the motions and actions gone through by the smoker and the known orientations of the powers to which they must refer.

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To describe and illustrate the detailed characteristics of primitive thinking and the primitive mind is outside the scope of the present discussion. But from the standpoint here adopted the essential difference between primitive rational thinking and civilized rational thinking is that in the latter case a conscious attempt is made to follow rules of procedure already laid down. In other words our rationalism involves thinking which has already considered itself and established canons of procedure. In addition, our rational thinking is for the most part applied to the consideration of a defined nature—a three-dimensional realm in which the interplay of events is of a cause and effect character. By contrast, in the primitive case, formalized logic is absent, and the universe of discourse is the world of crude experience without differentiation of mind and nature—in the sense of Santayana that not only primary and secondary qualities inhere in things, but also tertiary.

From an ethnological standpoint the development of our logical rationalism is an historical event in a particular stream of culture. To deny the presence of human reasoning—uncodified though it be—to cultures from which rationalism is absent is to assert the identity of reasoning and logic. A broader view is that logic is a special controlled ordering of the processes of reasoning, which can and do exist both before logic, and in its absence.

To avoid misunderstanding I should state that I am using logic herein as a term for formalized and systematized rules of thought procedure without regard to what type or system of logic is in question. I do not think the points made are invalidated whatever specific "logic" be brought to mind, because the distinction here is between all logics as conscious products of the human intellect and the absence of the consciousness that the control of human thinking is a problem. In both cases, however, human thinking goes on.

Where human thinking goes on and constructs a world view in terms of all available suggestions of culture and experience, it is a confusion of thought to class such world views as "unreasonable." They are philosophies of their own kind, and judgments of their intellectual validity must be based upon a consideration of the internal aspects of the system, of its rationale and order from the standpoint of the believer. Any belief which is held as part of such a system is not a superstition.

ALEXANDER LESSER.

NEW YORK CITY.

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THE CONCEPTION OF LIFE AS ENTELECHY

THE conception of life as entelechy seems to be typical of a rather large class of philosophical illusions. The present writer is of the opinion that this is a result of the tendency to mistake surrounding objects which are conspicuous in the perspective of the observer for factors to which a particular living process responds. In a recent article,[1] Sir Oliver Lodge tries to make out a case for the conception of life as entelechy or form which guides and directs physical energy, but is not energy itself, and which determines, in some mysterious way, the structure or pattern of an organism.

The ontogenetic history of an organism, in which cells descend from a common parent cell, differentiate in structure and function, and finally reach a condition of equilibrium in the adult structure, is simply labelled life and left in complete mystery by Sir Oliver Lodge and Professor MacBride from whose works he quotes. No one, of course, would presume to *know* how this class of phenomena is possible; but as long as some explanation is *conceivable,* it might be more fruitful for research to entertain it than to poetize over unfathomable mysteries.

An approach to this problem of entelechy is suggested by certain general observations concerning organic behavior.

In the first place, *organisms behave differently under different environmental conditions.* They even sometimes develop differently, assume entirely different functions, and become, in a fundamental sense, different organisms when they are allowed to develop in different environments. Development can be arrested at certain points, in some cases, and in others can be carried on farther than natural conditions carry it. It is also known that such changes impressed upon the organism by the environment are sometimes passed on to its descendants, as is witnessed by the experiments in which mutations are produced by applying x-rays.

The second important consideration is that *organisms can induce a change in their environments.* This can occur in any number of ways; but perhaps chemical and electrical catalysis suggest the most obvious possibilities.

The third point to which I wish to direct attention is *that a definite series of changes can occur in the environment as a direct result of the increasing number of organisms and the new arrangements and differentiations which the various number combinations effect.*

Let us bring these three observations simultaneously to bear on the conception of life as *form* for *matter.* A broad analogy, which,

[1] *Hibbert Journal,* April, 1931.

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if it does not explain, may yet serve to point out the general direction of our argument, is found in the life of human beings and of social insects. One human being alone, in his bare relation to physical nature, does not behave as he does in the presence of a companion. There are certain definite patterns of behavior which are called out by the presence of the other one. Similarly, three, four, or five individuals set up corresponding social patterns which determine, in broad outline, the behavior of each. Differentiation of labor or function occurs at different stages of complexity as the number increases. Again, the analogy between the organization of the social insects and the multicellular organisms has been pointed out often. In the case of the insect community, the structure is probably fixed by the conditions which nurture the egg to maturity, since reproduction does not occur in the outlying *organs* as it does in ontogeny.

Assuming certain broad limitations of physical environment which are relatively unchanging, a stage is reached in the growth of such societies which is roughly analogous to organic maturity. Human societies do not always reach a stage which could be called maturity; significant changes in the environment, besides those produced by the increasing number of members in the group, are produced either by the growth of other societies or by radical changes in the physical environment. But under conditions accidentally protected from outside influence, societies have reached stages which can appropriately be called maturity. Such patterns are not, however, entirely independent of the individual type; for example, a society of Hottentots can not be expected to develop according to the same general pattern, under particular environmental conditions, as a stronger and larger type. The Hottentots might be forced to resort to cunning and to cultivate peace where others would resort to force and become warlike in their habits. This analogy suggests a possible approach to the inter-cellular organization and differentiation.

In order to carry this analogy over into the explanation of the conception of life as *form* or *entelechy*, let us assume the presence of a single cell, having a certain degree of sensitivity to its environment and also the capacity to produce, or to contribute to the production of, certain increments of *change* in the environment to which it is sensitive. This assumption justifies the expectation that a certain rather definite series of events will take place.

Incidentally, it might be argued that the same problem of the relation between form and matter still confronts us even if we succeed in dismissing it from ontogenetic evolution. There may be some truth in this; but if the phenomena which so much arouse the

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interest of the human mind in entelechies can be reduced to terms of the behavior of a single cell, a start will have been made in the direction of clearing up the mystery out of which the problem actually arises. It is not necessary, either, to grant that the explanation will not apply in some measure to the growth and development of an individual cell. Suppose, by way of illustrating this, that a given cell is able to make the response, P, to environment, E, and the response, P', to environment, $E—e$. It is important to emphasize the fact that there are points at which a slight quantitative change in the environment might call out a qualitatively different response in the cell. It is conceivable that the increment of environmental change, e, can be produced by the metabolic processes of the cell itself; and, if we postulate a series of such changes produced by the cell on its own environment and let the number approach infinity, we have an *evened out* process of change which suggests growth in a cell. But if it so happens that the tendency of the cell, in relation to environment E, is to retain its unity, while in environment $E—e$ it reacts by separating into two processes, each of which *happens* to be a duplication of a previous stage of its development, we have a simplified representation of the phenomenon of reproduction as brought about by changes in the environment which the cell's own life processes produce. It seems, however, to be rather remarkable that a complete cycle of changes could occur in the process of protoplasmic anabolism which would include reproduction. Let us consider this from the standpoint of chance alone. There are roughly three different types of events occurring in nature: Those which change their patterns continually; those which recur to the same pattern at intervals; and those which recur to the same pattern at intervals with a *duplicate copy*. Once the second and third cycle is established, there is no reason why it should not repeat itself indefinitely, or at least tend to do that. It is obvious that the third type is highly improbable as compared with the first. Mere chance tremendously favors the first type of event over the second, and the third seems almost wholly incredible as a product of chance when we consider how abundantly it occurs in nature. However, *chance* seems to be a more promising explanation when we take into account the tendency of the second and third types, and especially of the third, to impose perduring patterns upon nature. If we wished to honor Heraclitus, we might imagine a condition at the beginning in which the first type of event prevails, followed by a gradually increasing predominance of the second, and, finally, of the third type.

The first thing to be considered in connection with ontogenetic evolution is the change of the cell's behavior in response to changes

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which it produces in its own environment. If the cell is sensitive to its own unaided effects on the environment, it changes its pattern of activity, and perhaps we can say that it *grows*, in accordance with the account given above. This process could, for one reason or another, reach a stage of equilibrium. For example, if we consider the single possibility of the chemical changes produced on the environment by the activity of the cell, the process of absorption by surrounding solvents could very well strike a balance with the production of chemicals. In such a case, we would have a one-celled organism which simply maintains its life process without either growing or reproducing. But suppose that the accumulation of chemicals is sufficient to bring about the phenomenon of reproduction as described above. Then a different situation is produced by the presence of the second cell, provided, of course, that the two cells *remain near enough together* to combine their effects on the environment. It is not surprising that it is the usual thing in nature for two sister cells simply to drift apart and each repeat the process of reproduction quite independently of the other; but the alternative to this was for two cells to *adhere* after division, and then a new environmental possibility was established. Whether they will respond this way or not depends upon the sensitivity of the cells; but the difference between cells which adhere and remain in juxtaposition and those which separate may not necessarily be great. If *identical twins* develop from one cell, as is believed to be the case, that phenomenon is strong evidence that a very slight difference can determine this very important step in the evolutionary process. Sister cells might, occasionally, owing to some slight environmental disturbance, separate and produce a pair of organisms when the usual thing is to produce only one. In the case of some animals, the process is even carried a step farther. Who knows but that under conditions yet unknown, single-celled organisms might be induced to produce closely related communities, or even multicellular organisms?

If reproduction of cells goes on, and they do adhere, it is not necessarily true that a significant change, one to which the cells are sensitive, will occur with the addition of each new cell. It might be the case that several new cells would have to be added to the group before an environmental change would develop of a sufficiently marked character to call out new processes in the cells. When this stage is reached, however, provided that it is, why is it that all the cells in the community, being sisters and alike, do not simply change their behavior simultaneously without differentiation? Presumably, because the *position* of the individual cell in the communal pattern, or of a group of cells in juxtaposition,

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makes an environmental difference. Adhering to the chemical conception of environmental influence, for simplicity only, and not because it is entertained as a solitary possibility, we can imagine that the outer layers of cells are bathed in a less concentrated solution than the ones which happen to be located in the central regions. The relative position with respect to gravity might make a difference in the chemical constituency of the different regions. It is recognized that this is only a sort of an analogy, based on imaginary fact; but it suggests the possibility of a *series* of changes which might be *recapitulated in each ontogenetic history*. Recapitulation would be carried out to the highest degree, of course, by cells most alike in their sensitivity to environmental changes, and the degree of recapitulation would correspond exactly to the similarity of cells compared. Identical twins would follow the same developmental patterns except perhaps that in the last stages some accidental disturbances might cause them to take different routes of development. Brothers and sisters would be less alike; that is, they would have fewer of what might be called the secondary lines of development in common. Similarly, there would be increasing differences between members of the same species, family, order, class, and phyllum. At the base of this hierarchy, only the elemental lines of development remain common, such as exist between all backboned animals, for example. The similarities and differences in structure between different plants and animals suggest as much.

Differentiation and specialization itself might account for the more marked changes in the immediate environment of either all or some of the cells in the group. The growth of an organ, such as a gland with its alleged hormones, would be a striking example.

This approach to the problem explains some of the phenomena which Sir Oliver Lodge takes to be complete mysteries. Take this phenomenon, for example: If the leg of a newt is cut off, the newt is soon able to grow a new one. Now what is the explanation of this in terms of our theory? Simply this: The outlying cells of the stump are able to establish a sphere of influence sufficiently typical of their locality to cause their descendants to grow into the place and carry on the function of the missing cells. This continues, presumably, until a new member is completely replaced. But in wounds, sometimes, the outlying cells are not able to reproduce the typical growing condition for that locality, and *scar tissue* develops in the place of the regular tissue. There is no necessary mystery about this, since the determining environmental influence is probably decidedly local.

There are many instances of such restorative processes in nature.

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In a society of men or bees, it is not only true that certain individuals are reproduced to take the place of those who die or are destroyed; but in many cases, a complete function can be replaced. New workers can be reproduced in a beehive when they are needed. A new queen can be nourished and developed. If a given area in a forest is cleared, the climatic conditions and the surrounding vegetation will, in time, reproduce pretty much the original structure.

Let us consider the second example which Sir Oliver mentions. The tail bud of one newt is grafted into the body of another near its fore leg. Now the mystery is only deepened here by the assumption that the "cytoplasm" of the tail "was organized" to produce an adult tail. The weakness of this assumption is revealed in the fact that an adult tail is not produced. It is just as we would expect that the cells, transferred to the new locality under conditions which make it possible for them to live, would come under the influence of local conditions and develop according to the pattern which the locality itself renders possible. It would seem that "When in Rome do as *Rome* does" is a bit of cellular wisdom.

It is not at all surprising that such a transplanting process is possible only in a few interesting instances. As specialization takes place, the cells evolve away from the parent type until they become so unlike each other that finally the environment which sustains one will not sustain another. We do not expect, for example, to be successful in grafting a bone cell into a cleft in the skin or muscle. It is interesting to observe that this type of evolution can not take place according to the principle of selection. Any *change* brought about in the cell in the direction of specialized function and structure has to be *induced* by the immediate conditions. It is conceivable that both principles operate in nature. From this standpoint, the process of cellular evolution in ontogenetic history can be recapitulated by a second cell of the same type which starts out where the first one started; because, *granting the same start,* one condition follows inevitably out of the preceding conditions, and each condition finds a unique place in temporal pattern. The whole *spatio-temporal* pattern of conditions is the *entelechy* of the organism. The tendency, from this standpoint, is to consider each ontogenetic history as a separate process of evolution impressed upon the plastic cells by this determinate pattern of conditions.

What is it, then, that the organism inherits from its parents which causes it to develop according to the family pattern? Such a pattern of environmental conditions evidently exists only in relation to a cell of a very definite sensitivity. We have the answer of the geneticists to this question. They say that certain *character*

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determiners must be in some way telescoped in the cell, and it is their problem to find these. From our standpoint, it would simply be a degree of sensitivity plus certain capacities to produce changes in the environment. The fact that the cell seems to inherit certain definite possibilities to be realized at particular stages in ontogenetic development may result from the illusion already referred to in the form of the assumption that the cell is "keyed up" or "organized" to produce a certain type of adult organism. This may be the vestige of a theological concept despite the avowed naturalism of most geneticists, because *special creation* is a theological concept. Most thinkers who deal with this problem seem to assume that the whole pattern of the adult organism has to exist somewhere in the beginning, either as a spiritual form, an overhanging shadow of the adult being, or in the *organization* of the parent cell. The gene theory itself seems to be loaded with this prejudice in the latter form. While the geneticists usually take no conscious stock in the assumption of creation, they nevertheless seem to be always looking for something which could be posited only by a *special creation.* This may account for the fact that they sometimes unwittingly beg the question of creation.

The fact that a cell responds typically to a great number of environmental conditions is really no more remarkable than the fact that it responds typically to one given condition, as long as we do not lose sight of the environmental factor. When we forget the environment, we are forced to telescope the pattern of the adult organism in the original cell. Cells would not necessarily have to possess exactly the same *degree* of sensitivity in order to follow each other through certain ontogenetic patterns. It is not astonishing that a given stone falls from the top of a tower with a certain accelerated velocity, sinks in water, and floats in mercury. We are not in the habit of thinking of these capacities as patterns of behavior which the stone somehow has tied up in itself independently of conditions. In this case, it really possesses mass which works differently under different environmental conditions. It is also a relevant fact that the property of mass might vary considerably without changing the *response pattern* of the stone in any of the above-named situations. But there are limits beyond which this property can not change without making an important difference in some part of the pattern. For example, a piece of gold might be substituted for the stone and at least one response would be changed. The gold would fall from the tower with the same accelerated velocity, sink in water, and *sink* in mercury. There seems to be some plausibility in the assumption that differences and similarities somewhat analogous to these might account

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for differences and similarities such as are found in comparisons of ontogenetic histories. Cells somewhat alike in sensitivity might find their way through similar mazes of conditions until a stage is reached which takes account of their differences and divides their ways. A so-called *mutation* might be a very slight difference of this kind which would make it only a special case of such differences as occur between the members of different species, genera, etc., in a more marked degree. That is, it might be simply a stable difference, induced by some accidental environmental condition, and left at the mercy of natural selection.

The evidence that such *induced* changes can occur in the cells of a mature organism is not entirely wanting. We have, for example, callous tissue, scar tissue, and perhaps cancer tissue as examples of cells which have taken on more or less permanent characters as a result of environmental influence. Cancer is probably a good example of how a wounded or detached cell can assume and maintain a different line of development from that of the parent cell. If such *induced mutations* can occur in cellular evolution, and in the body of an adult organism under special conditions, is there not some reason to suppose that they might also occur for a similar reason in the germ plasm? This suggests the Lamarckian hypothesis as applying to the *acquired traits* of the individual cells, *in relation to their own immediate environmental conditions,* rather than to the multicellular organism in relation to the environment to which it responds *as a whole.* Regarded from this standpoint, it is not in the least astonishing that the organism's *acquired habits of living* do not have anything to do with inheritance. The chemistry of the cell's life is obviously relatively independent of these habits. It is possible that a radical change in the food habits of the organism, or something else which has some definite connection with the chemistry of the cells' life, might induce a permanent change. However, if a permanent change in the germ plasm were so induced, it would obviously be just a change which would have no connection with the adaptation involved except such as could be established by chance and selection.

This paper is not written with the view of giving a true picture of what actually happens. That is the prerogative of the experimental scientist.[1] Perhaps it can be more appropriately posed as a sort of a *parable* put forth for the purpose of directing attention to the particular cell's interaction with its own immediate environment, and also to the *serial nature* of the changes in this environment, as the *causes* of ontogenetic evolution. This suggests that complexities which are usually attributed to the structure of the germ plasm really qualifies the environment, and that the determinant differences

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between parent cells are relatively simple as compared with the differences between the corresponding adult organisms.[2]

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BOOK REVIEWS

The Logic of Discovery. R. D. CARMICHAEL. Chicago: Open Court Publishing Co. 1930. Pp. ix + 280.

When one of America's outstanding mathematicians and a past president of the Mathematical Association of America writes a book on the theory of logic, it deserves careful consideration. Logic, the most fundamental discipline of philosophy, has always taken its ideals from contemporary science, and mathematics is to-day the most advanced of sciences.

In spite of its misleading title, the book is a collection of essays on various themes dealing with theory of logic. Five out of the nine essays are reprinted from various journals. The first essay gives the book its title. Professor Carmichael concludes that all developed logics are logics of demonstration, and that there is no such thing as a logic of discovery, but only different methods of discovery, each restricted to a separate field. The most interesting of these is the use of an ideal or a metaphysical principle to discover a scientific hypothesis that is independently verified. The second essay shows that a developed science takes the form of a "postulate system" (what has elsewhere been called a "rational induction"), and pleads for the more conscious use of postulate systems in giving deductive form to exact thought. The third essay discusses the general logical characteristic of deductive postulational systems, illustrating them by a miniature mathematical system. The fourth essay is a brief historical résumé of the development of the sciences, showing that the more developed a science, the more it assumes a postulational form. In accordance with this criterion, the physical sciences, especially celestial mechanics, have attained the greatest development, while the biological and psychological sciences have not yet made much progress. The fifth essay deals with various topics: Professor

[2] The gradational theory of Professor Child, the University of Chicago, evidently has some points in common with this. It seems to me, however, that his theory is a sort of compromise between the entelechy theory and an out and out physical explanation. That is, he seems to posit little bits of entelechy, in varying amounts, with each cell or group of cells. If he would abandon the analogies which he borrows from social communication and social dominance, much of this vague, long-distance influencing would probably vanish in a fog of mystery.

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Carmichael argues that novelties do arise in exact thinking, so that mathematics is not a mere tautology; the essence of exact thought is the "doctrinal function," hence all exact sciences should be put into that form; the author seeks but does not find proof for the binding character of deductive necessity. The sixth essay arrives at an understanding of one of the most fundamental notions in modern mathematics and one of the most important recent logical discoveries —the doctrinal function. It is defined as a "body of statements which is made up solely of a set of consistent postulates about elements or objects not explicitly defined and the logical consequences which flow from them" (p. 151f). The seventh essay is a discussion of topics connected with inductive logic. Professor Carmichael traces the development of atomic theory as an illustration of the way that hypotheses pass into a state of security in science; he combats the empiricist conception that theories are only illusions, whereas only simple and brutal facts are true; he dips into metaphysics in asserting that "natural science should be considered a construct of the mind rather than a paraphrase of nature wrought out by the mind" (p. 191), although he later admits that "facts exercise a certain dominating effect over theory" (p. 197). He ends with the view that "there is no such thing as a rigidly demonstrated theory" (p. 185) and "there is no ultimate explanation possible by the methods of science" (p. 198), although he does not see that, if ultimate demonstration is impossible, and "the certainty of mathematics . . . is not absolute, but relative" (p. 270), no one theory can have any logical preference over any other, since even all probabilities become indefinitely small, so that there can be no security in science, and modern science and mathematics can claim no more knowledge than the ancients had! The eighth essay resumes the problem of discovery. The author summarizes various studies of the way that discoveries have been made, especially in mathematics; he discusses the place of fact and mind in natural science, concluding that both are necessary and neither sufficient by itself; and he shows that Rignano's theory of reasoning is inadequate. The ninth and last essay is an attractive summary of the human values to be found in mathematics.

The book is written clearly and untechnically. One of its great merits is that, while it deals with fundamental mathematical problems, it can be understood by one who has only a very elementary knowledge of mathematics. The typographical make-up is good. One is irritated, however, to be presented with many quotations without, in most cases, being informed whence they are taken. The manner of writing the essays has led to some redundancy; the reader is annoyed to find the same point repeated in different essays. Except for the later essays, they are not well concatenated.

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One is disappointed, too, to find Professor Carmichael remarking, "The syllogism is not the central elementary process in exact reasoning, but rather is one only—and that not the most important" (p. 127), when it has been shown that the syllogism, in a generalized form, is fundamental to mathematical and all deductive reasoning, and constitutes the essence of rigorous demonstration.[1]

If a philosopher may be permitted to criticize mathematical terminology, the phrase, "undefined term," which is declared to be an essential part of the doctrinal function, should be challenged. Professor Carmichael recognizes that such terms "are not unrestricted in meaning" (p. 48), and he says, "To define the range of use of fundamental terms not otherwise strictly delimited in meaning . . . is precisely one of the important functions of the system of postulates in a mathematical science" (p. 86). In fact, in a properly stated doctrinal function, these so-called "undefined terms" are *completely* defined for the purposes of that doctrinal function, as a little inspection will show. They, however, need further definition for the purpose of creating an interpretation or exemplification of the doctrinal function. To call them "undefined" is a misnomer. Plato rightly says, "False words are not only evil in themselves, but they infect the soul with evil"; labelling such completely defined terms "undefined" leads to inaccurate thinking and philosophical misunderstanding.

Such criticisms do not affect most of the book's thought, which is a readable exposition of the recent developments in mathematical science important for philosophy. Professor Carmichael states the underlying purpose of the book thus: "We can nowhere study the processes of thought . . . more effectively than in that domain where it has been most successful. . . . It is a corollary that mathematics . . . will yield to us some of our most definite information as to the essential elements in the methods of clear and accurate thinking" (p. 254). Such an attempt can not but be valuable to the thoughtful philosopher and logician.

HOMER H. DUBS.

MARSHALL COLLEGE.

New Views of Evolution. GEORGE PERRIGO CONGER. New York: The Macmillan Company. 1929. ix + 235 pp.

Evolution and Man. HERVEY WOODBURN SHIMER. Boston: Ginn and Company. 1929. vi + 273 pp.

Of all the intellectual disciplines philosophy has done least, perhaps, to render its teachings accessible to the masses, although its practical values are said to compare favorably with those of other

[1] "The Nature of Rigorous Demonstration," in the *Monist*, Vol. XL, pp. 94ff; and *Rational Induction*, by H. H. Dubs, ch. VI.

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branches of learning. Philosophy has not even evolved a technology for the application of its results nor a profession of practising philosophers to assist the layman in living his life by philosophy's light. That should not be a chimerical enterprise, considering the extensive technological applications of sciences such as psychology and sociology that are no closer to life's vital issues.

The Philosophy for the Layman Series is evidently designed to help repair these deficiencies, by making philosophic teachings accessible, through the medium of the printed page, to the general reader. Dr. Conger's volume, a contribution to the series, represents an attempt to do this for the theory of evolution, deemed to be a phase of philosophic as well as of scientific thought. Quite appropriately, therefore, the book is broad in scope, and places the emphasis on the larger aspects of the subject. Following a definition of evolution in both positive and negative terms are chapters on the evolution of matter, of living organisms, of nervous systems and minds, of cultures, and two concluding chapters presenting some general philosophies of evolution, and an estimate of evolutionism.

Considering the audience addressed, the exposition of these topics is a workmanlike performance. As one would expect of so comprehensive a study, however, it is of uneven quality. Particularly good is the discussion of minds and nervous systems, in which the fundamental principles of neuropsychology—twelve in number, according to the author—are expounded. Excellent, too, is the final chapter, "An Estimate of Evolutionism," in which some of the really serious criticisms of evolutionism are considered. But these parts of the discussion may be rather difficult for the average layman. The weakest chapter of the book is that on the evolution of culture. Dealing, in twenty-two pages, with evolution in economics, eugenics and euthenics, ethics, politics, art, religion, and history at large, it is too general to be of much value, even to a layman, whereas it should have been possible, with the excellent expositions now available, to have presented an informing elementary description of cultural phenomena and cultural change. Finally, the basic questions at issue between mechanists and vitalists are only partially indicated in the rather elaborate discussion of that subject.

As is quite proper in a treatise of this character, Dr. Conger is cautious about committing himself to any of the positions involved in current controversies. He concedes that evolutionism is not necessarily opposed to all forms of creationism, especially "initial creationism," though he evidently inclines toward a radical evolutionism relying wholly on "inherent causes" for explanatory

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purposes. This is in line with an apparent preference for unrestricted as against restricted evolutionism, which holds that there has been evolution "between" as well as within the realms of matter, life, and mind; for the principle of creative synthesis as a theory of how this evolution has occurred; and for a monistic conception of psychophysical relationships, that "a mind is a nervous system at work and that nervous system and mind are related as structure and process." The great argument for evolutionism, according to the author, is derived from the principle of parsimony. Inherent causes adequately account for the observed facts, making resort to intervening causes unnecessary. But decisive proof is not possible, since the evidence does not in itself compel belief, and inference as a supplement to the direct evidence can not yield absolutely final conclusions. Consideration of the same principle apparently inclines the author in favor of unrestricted evolutionism and other general positions indicated above.

Professor Shimer presents "the facts and theories of evolution as a basis on which to discuss man in particular,—his ancestry, his present inherited body and impulses, and how these condition his reactions to his environment." He discusses evolution from the inorganic to the organic, the evidences of organic evolution, the causal factors of evolution, and the evolution of man. The exposition of these subjects is of an elementary character, and avoids controversial issues. It abounds in concrete factual material, lucidly and concisely presented. The book, by virtue of these qualities, should prove an excellent introductory text.

It has serious faults, however, though these should not materially impair its value as a text in the hands of a competent teacher. The author assumes, as is his right, that, with the development of life, a new type of energy was superimposed on inorganic energies, and that this energy later developed chemical messengers and nervous systems as coördinating agents; but he fails to point out that there are many positions alternative to this one. Similarly, genetic relationships among the various classes of organisms, including the Hominidæ, are traced with a confidence that more critical biologists are far from feeling. Again, the author arbitrarily assumes that four great groups of instinctive impulses—self-preservative, reproductive, parental, and gregarious—constitute the basic foundations of behavior in the higher animals, including man. He is apparently unacquainted with the criticism and revision to which the concept of instincts is now being subjected. The discussion of man's social evolution is equally faulty, being very general in character and without benefit of studies in cultural anthropology on which a competent treatment of the subject must rest.

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But Professor Shimer has many suggestive things to say on these subjects. And, despite the faults, the simplicity of the treatment and the wealth of illustrative material make the book a valuable teaching instrument, if used with discrimination.

SEBA ELDRIDGE.

UNIVERSITY OF KANSAS.

La Pensée de Jean-Jacques Rousseau. ALBERT SCHINZ. Northampton, Mass.: Smith College. 1929. 2 vols. Pp. viii + 521.

Professor Schinz's study is a scholarly investigation of Rousseau's principal works. From this examination the conclusion is drawn that the "real Rousseau is fundamentally rational in his ethics, his politics, and his theology" (p. 511). The study is divided into two parts. In Part I, the author weighs the importance of the social and psychological conditions that obtained in Rousseau's time. The two moral tendencies "which strove for empire in the eighteenth century" were the romantic—fostered by the social conditions—and the calvinistic—handed down from the past. These tendencies, in modified form, were mirrored in Rousseau's own soul. He never succeeded in escaping the conflict between these. The romantic aspect of Rousseau's work was and is appreciated and the other aspect ignored.

In Part II, Professor Schinz traces the fluctuation and development of Rousseau's thought throughout those works which are most important from a philosophical point of view. He never evolved a coherent philosophy. His thought always alternated between the romantic and rationalistic attitudes, but the latter prevailed more and more. He was interested chiefly in a practical philosophy. He sought a formula that would conciliate man's aspiration for terrestrial happiness with the "necessary disciplining of human nature to realize this happiness" (p. 506). The author concludes that Rousseau will remain the most living of the writers of the past because his thought concerning the problem of human destiny never reached definitive form—it is only suggestive and consequently each student of Rousseau can have the sensation of becoming a collaborator in solving the problem.

In spite of the excellence of this study, certain inadequacies appear in the treatment of the philosophical problems involved. Professor Schinz's initial discussion of virtue is too sketchy. He attempts to present the essence of the Greek notions of the virtues in a brief statement of what he labels *vertu-sagesse*. The Christian notions are given a similarly abbreviated statement and the resulting conception is labelled *vertu-renoncement*.

Professor Schinz attributes to Rousseau a rationalistic theory of

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the conscience. At risk of being regarded "a slave of the text," one can not help recalling Rousseau's statement that Julie had but to follow the dictates of her heart in order to do right. Many other passages might be cited that indicate that Rousseau was mainly an emotional intuitionist in his theory of the conscience. Professor Schinz himself uses the terms *ce sentiment moral* in presenting Rousseau's theory. He believes that his treatment of Rousseau's theory is in accord, in the main, with that of Höffding, though Höffding regards Rousseau as an emotional intuitionist. (*Cf.* p. 241.)

Professor Schinz's notion of liberty is naïve. It is the notion that to be free one must be able to obey the whim of the moment. Wisdom is regarded as enslaving man (*Cf.* p. 402). Furthermore, in organized society man loses his freedom. (*Cf.* especially pp. 391–393 and the statement: "If I were really free, I would work only for myself.") This inability to comprehend the nature of freedom is based upon a misconception of man's nature. This misconception is also evidenced in what is implied as constituting *bonheur*. Professor Schinz's conception of *bonheur* is hedonistic.

Finally, one welcomes the emphasis on the rationalism in Rousseau. But is not the *real* Rousseau also romantic? The author indicates freely Rousseau's romanticism, then why conclude that the *real* Rousseau is rationalistic? In many passages one feels as if the author were straining to attribute a meaning to Rousseau's thought of which Rousseau gives no implication. (*Cf.* pp. 147, 180, 190, 224, 248, 489.) One ends the study with the feeling that Professor Schinz is not sufficiently beyond the influence of Rousseau to appreciate certain weaknesses of the latter in dealing with philosophical problems. One is more thoroughly convinced of Rousseau's predominant romanticism when one has followed through many citations whose import the author has not recognized.

MARJORIE S. HARRIS.

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JOURNALS AND NEW BOOKS

PHILOSOPHY. Vol. VI, No. 24. Representation: *J. L. Stocks.* Interaction and Cosmic Structure: *J. E. Boodin.* Definition of Value: *H. Osborne.* Spinozistic Substance and the Upanishadic Self: *M. S. Modak.* Cause and Ground: *F. E. England.* Reality in History: *Hilda D. Oakley.* The Constant and the Contingent in Human Thought and Life: *A. E. Garvie.*

Carritt, E. F., editor. Philosophies of Beauty. From Socrates to Robert Bridges. Being the Sources of Aesthetic Theory. With

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a foreword by D. W. Prall. New York and London: Oxford University Press. 1931. xxix + 334 pp. $4.25.

Church, R. W.: A Study in the Philosophy of Malebranche. London: George Allen & Unwin, Ltd. 1931. 286 pp. 10s. 6d.

Dawson, Miles Meander: The Ethical Religion of Zoroaster. New York: Macmillan Co. 1931. xxviii.+ 271 pp. $2.25.

NOTES AND NEWS

The program of the Philosophical Union of the University of California at Los Angeles for the year 1931–1932, under the general subject "Philosophy and Culture," is as follows:

October 28. PHILOSOPHY AND MUSIC.
Finale from the Symphonie Pathétique: *Tschaikowsky.*
The Divine Tragedy: *John Elof Boodin.*
Choral in B. Minor: *César Franck.*

November 18. PHILOSOPHY AND POLITICS.
Plato's Philosopher-Statesman: *B. A. G. Fuller.*
The Want of a Philosopher-Statesman: *John Beardsley.*
Discussion: *Charles G. Haines.*

January 13. PHILOSOPHY AND ART.
Art and Life: *Frank Morley Fletcher.*
Art as Interpretation: *Kate Gordon.*
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We regret to announce the death of Dr. L. Pearl Boggs on August 15, 1931, at Pasadena, California.

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THE JOURNAL OF PHILOSOPHY

THE LATENT IDEALISM OF A MATERIALIST

A Review of Santayana's *Realm of Matter*

"IN a world that in extent and complexity so far outruns human energies," wrote Mr. Santayana some twenty-five years ago, "physical knowledge ought to be largely virtual; that is, nature ought to be represented by a suitable attitude toward it, by the attitude which reason would dictate were knowledge complete, and not by explicit ideas."[1] Although in the intervening quarter-century the ideas by which natural philosophers represent nature have been tumbled about in a kaleidoscopic whirl, and although Mr. Santayana himself has insisted that in his thought nature has come forward to push the life of reason into the background,[2] the passage of time has not altered this essential conviction. In *The Realm of Matter*[3] he is not concerned with the current winds of doctrine so briskly blowing among the physicists, and so confusedly fluttering the pages of our philosophic journals. He does not deign to enter the lists with Einstein, Whitehead, and their ilk; he hardly condescends, even by implication, to look down upon the jousting and hurl a transfixing metaphor into the midst of their sallies. No longer is it his crown to mock the runner's heat; he has more serious business afoot. Let others quarrel about explicit ideas; for him the prize is still a reasonable attitude toward nature, and that prize is his before the tourney begins.

In his comments upon the second of the realms of being Mr. Santayana resists all temptation to forsake his character. He remains the sceptic and the moralist, and does not seek the mantle of the natural philosopher. Since he first transcribed the drama of the life of reason, the years have brought a mellower scepticism, perhaps, and some enlightenment on the means whereby spirit can win its deliverance. Yet the reader who noted that Mr. Santayana had smelt out news in the realm of essence will find that little has disturbed the even tenor of the realm of matter. The theme of mechanism, recurrent in those older days, is not heard so loudly

[1] *Reason in Science*, p. 169.

[2] *Reason in Common Sense*, Preface to 2d edition.

[3] George Santayana, *The Realm of Matter*. New York: Scribners. 1930. Pp. xvi + 209.

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now. Perhaps he has outgrown the awe felt for his earlier teachers; perhaps, now that pedagogues have waxed so disputatious, he is content to leave them to their idle strife. Be that as it may, there is a singularly timeless quality about the comments of this observant and intelligent spirit upon the flux of matter and its dark complexities; and herein lies their chief moral value. How could it be otherwise? How could the discovery of new and intricate patterns in the flux alter the immemorial conditions of human life, when once the spirit has attained a clear perception of its essential dependence and glory? For matter is matter, by whatsoever name it be called; it remains the principle of existence and movement, implied in the very denials of foolish philosophers. This is the burden of the book, and its climax is fittingly reached in the brilliant demonstration that this fundamental materialism of all human wisdom lies latent even in the thought of those who shudder at the name. The proudest eagle must take his flight from solid earth, and to it he must return. If Mr. Santayana prefers to make his point with his eye upon truly noble soarings, it holds equally of those lesser birds of the moment who think to have escaped matter by transmuting it into pure light. When physicists vie to disclaim materialism because, forsooth, matter will not be bound by the guesses of Newton, it is good to have materialism as a moral faith so clearly disentangled from its adventitious scientific trappings.

For it must be repeated that the materialism of Mr. Santayana is no hypothesis of the physicist; it is the materialism of a moralist anxious to inculcate respect for the flux of nature that perception, enjoyment, and wisdom may flourish more freely. One might suggest, indeed, that materialism as an historic doctrine seems ever to have been the insight of the moralist seeking to guide human life, and not, save accidentally, the vision of the scientist trying to explain nature. By and large, the men of understanding have been impressed rather with the intelligibility of nature—an all-too-human credulity, comments Mr. Santayana—and have been prone to read the pattern of their knowledge as nature's core. Such a skeleton of logical structure Mr. Santayana's world conspicuously lacks. It is for him enough that the life of the spirit recognize its essential dependence on that enveloping world which sustains it and of which it is the commenting voice, that world which is matter just because it is neither spirit nor its vision. "The recognition of the material world and of the conditions of existence in it," he has pointed out, "merely enlightens the spirit concerning the source of its troubles and the means to its happiness and deliverance."[4]

For Mr. Santayana, despite his materialism in physics—because

[4] *Contemporary American Philosophy*, Vol. II, pp. 248–249.

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of it, he would maintain—is an idealist, an idealist in that happy sense in which a just appreciation of the machinery of living liberates the spirit from preoccupation with such vain concerns to exercise its originality in the sphere of poetry and feeling. All idealists, he insists, have been materialists in secret; and his own open avowal but renders his loyalty to spirit the more complete. The pantheism in which modern idealism culminates "is more materialistic than materialism, since it assigns to matter a dignity which no profane materialist would assign it, that of having *moral* authority over the hearts of men." [5] Whereas a true idealism must distinguish sharply between the things of God and the things of Caesar, between the devotion due to essence and the respect owed to matter. And nowhere is Mr. Santayana's thought and love more firmly fixed upon essence than when his eye surveys the realm of matter. "Even a materialist," runs his confession of faith, "might be a true idealist, if he preferred the study of essence to that of matter or events; but his natural philosophy would keep his poetic ecstacies in their proper place." [6] This, then, is the function of natural philosophy, the end at which all understanding of the realm of matter should rightly aim: to keep the life of the spirit in its proper place, to render its conduct sane and sober, its philosophy secure, and its ambitions truly spiritual.

Nay more: the study of existence has for its goal the liberation of spirit from all the earthy contamination inflicted by the exaggerated piety of practical souls, who in their preoccupation with the flux of matter and its vain redistribution spend all their labor in tending the mother from whom they have sprung, and seek to drag spirit herself from her high estate to aid in that menial service. Is it amiss to suspect that Mr. Santayana's chief concern with matter lies precisely in the protest against such desecration of spirit? Matter disregarded can make its claim heard; the insistence of the flux is for mortals inescapable. But to confuse it with spirit is high treason, "treason to spirit, to truth, to essence, to those trembling immaterial lights and that infinite immutable background which, unless sharply contrasted with the matter which they surround, may be transposed in confused apprehension to the plane of matter, and saddled with material functions. Have not both truth and spirit, not to speak of essence, been represented in our day as things physical, temporal, instrumental, and practical?" [7] Such theories are ignobly and crassly materialistic, since they ignore or deny the existence of

[5] *Realm of Matter*, p. 205. Subsequent page references are to this book unless otherwise designated.

[6] P. 190.

[7] P. vi.

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spirit that can transcend the remorseless flux, look upon the eternal world, and redeem the labors of life by bringing joy into it.

That spirit may live free and untrammeled, taking no thought for the morrow, matter must do the dusty work of the world; just as the grace and charm of some fair king's daughter can cast their light only against the background of the sweat and toil of countless slaves. That spirit, having once found its way to the fresh sunlight of the realm of essence, need never return blinded to the material cave, the inhabitants of that dark region must be fully competent to conduct all their affairs themselves. Mr. Santayana jealously guards spirit and essence against the lightest burden of labor; their sole function is to be, and in their being to enrich the scene of life. All the tasks which less aristocratic philosophies have from time to time saddled upon them must for him be assumed by that tireless Caliban, the flux of matter. The living of life, the intelligent manipulation of matter, all that man does and thinks and is—these functions belong to that complication of restless matter that is the psyche. Not even the immemorial duty imposed upon essence to hold the world together, to serve as the architecture of heaven and earth, is here permitted. Dialectic is a habit imposed by matter, not the eternal scaffolding of the world. Every existential relation must be grounded in matter—a fact that overwhelms the phenomenalist. A materialism that lightly performs all that the most abandoned idealism has ever demanded, that laughs at hard round atoms and inexorable law, as the baubles of children playing—such a materialism has surely lost its sting. Indeed, the barbarous democrat, blind to the glories of a court and hardened of heart against the graces of a shining aristocracy, might well complain that Mr. Santayana's world would manage beautifully with the entire realm of essence banished to a Platonic past. Loyalty to such a *fainéant* dynasty, incomprehensible enough while Mr. Santayana was explaining that it did nothing for good or ill, must seem to his crudity a touch of madness now that the competence and ability of matter are so boldly extolled. Yet Mr. Santayana insists that essence and spirit are secure only so long as, like the British Crown, they refrain from taking part in the politics of earth. And who knows but that in morals as in politics such an apologetic may not be impregnable? Give all power to Caesar, and the most fanatical Roman need not grudge a prayer to God.

But if Mr. Santayana's chief concern in discoursing of matter is to guard against treason to spirit, what is this matter in its own right, this substance, this flux of existence? That, alas, man can never know. Matter does not lie open to intuition like essence; its ways are dark and hidden, it powers germinate underground, and only its foliage and flowers emerge into clear light. "It is in terms

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of essence that any possible physics is condemned to describe nature."[8] Yet "the intrinsic essence of matter being unknown, it may be figured almost indifferently by any image of sense or thought, as by 'the gods' or 'the devil,' provided that expectation and action are not misled by that symbol."[9] This dilemma is not without its difficulties for the philosophic mind: it condemns all investigation of matter to the realm of expectation and action.[10] The very existence of matter, as Mr. Santayana was so careful to explain in his prefatory volume, is an hypothesis of animal faith, forced on the psyche by her manifold pursuits. "The postulate of substance—the assumption that there are things and events prior to the discovery of them and independent of this discovery—underlies all natural knowledge. . . . It is not the task of natural philosophy to justify this assumption, which indeed can never be justified. Its task, after making that assumption, is to carry it out consistently and honestly, so as to arrive, if possible, at a conception of nature by which the faith involved in action may be enlightened and guided."[11]

Since all knowledge of nature must bear the stamp of its instrumental function, Mr. Santayana has no special reverence for science, and, truth to tell, shows little interest in its bulletins. Of course all human notions of matter, even if not positively fabulous, must be wholly inadequate.[12] "I am not concerned with repeating, correcting, or forecasting the descriptions which men of science may give of the world. I accept gladly any picture of nature honestly drawn by them, as I accept gladly any picture drawn by my own senses. Different circumstances or different faculties would certainly have produced different pictures. From Genesis to Thales, to Ptolemy, to Copernicus, to Newton, and to Einstein the landscape has pleasantly varied; and it may yet open other vistas. These variations and prospects show the plasticity of human thought, for it is not the facts that have much varied, nor the material station of man, nor his senses and destiny. The incubus of existence remains exactly the same."[13]

The scientist swears by his calculus; for him matter is that in nature which his human instruments have so far been able to

[8] P. 83.

[9] P. vi.

[10] "The realm of matter is the field of action; it is essentially dynamic and not pictorial," *Realm of Matter*, p. xi.

[11] Pp. viii, 2.

[12] P. viii.

[13] P. 7.

[14] "In scientific speech, at each stage of it, the word matter comes to denote such aspects of natural things as have become calculable at that stage," *Realm of Matter*, p. viii.

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measure.[14] But science is at best conscientious fiction;[15] its terms, like those of sense, are essences describing in human discourse the objects encountered in action.[16] The deeper it goes the thinner it gets, and it cheats us altogether if we mistake its symbols for the reality of nature.[17] Mathematical views are impartial, but wretchedly abstract; number is a just category to apply to the field of action, but a miserable essence to substitute for it. "Accurate science has this defect, that it seems to describe the distribution of units of nothing and to record averages in movements that elude sense, and yet are conceived and posited only in reference to pictorial objects."[18] In mathematics we fancy we have grasped the very essence of substance; yet in this our darling "we find ourselves in possession of a perfect method of notation from which everything to be noted has disappeared; and the only truth of our most accurate science turns out to be practical and utterly blind. We must revert, in order to recover our sanity and the subject-matter of our natural science, to crude experience and to the common arts."[19]

The poet, the moralist, the humble man, equally with the scientist, have hit upon symbols of value to describe nature. "All these partialities in the conception of matter are honest and inevitable. Each view, in stretching its special language as far as possible, may serve to disclose some side of the true order of nature. But this order is that of actual generation and existential flux, something that happens and is not conceived; so that no sensuous or graphic or mathematical transcript of it should be so pressed as to be substituted for it."[20] It may even be true that nature forms a universal mechanism, which human discourse may at length trace in symbol. "Yet however perfectly such a system might transcribe the flux of existence, it would not *be* that flux in person, or in its lapsing life; and science can not well be truer of it, though true at a deeper level, than are all the vulgar essences which visibly give it character."[21] Mr. Santayana does not spare the superstitions of contemporary learning. "Finally, in our own times, when physics speculates chiefly on bodies so remote or minute as to be known only through variations in light, matter seems to evaporate into these visible variations, as if light had no source, or as if man had no contact with nature except through the eye."[22] The proudest in-

[15] "There are presumably no atoms and no laws separable from the concrete strains and movements of the flux, by which its substance is intimately modified," *Realm of Matter*, p. 82.

[16] P. 49.

[17] P. 41.

[18] P. 88.

[19] P. 82.

[20] P. xi.

[21] P. 98.

[22] P. x.

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ventions of modern physicists appear in Mr. Santayana's pages only as the incidental illustrations of persistent fallacies.

No, useful as the attempt may be for practice, matter can not be forced into a definition. Matter is no human idea; it is rather the unintelligible alloy added to whatever essences may be assigned to it.[23] Matter is properly a name for the actual substance of the natural world, whatever that substance may be.[24] "Substance is always more and other than the essence which it exemplifies at any point. Its residual being, or not-being, is antithetical to essence altogether, and irrational. We may enjoy it, we may enact it, but we can not conceive it; not because our intellect by accident is inadequate, but because existence, which substance makes continuous, is intrinsically a surd, a flux, and a contradiction. What we may discover of it is not its essence, but its place, its motion, its aspects, its effects."[25]

Hence the folly of those who protest that materialism is absurd and exploded. By matter they understand some pictorial or mathematical idol substituted for the pregnant and unfathomable substance of things.[26] "To say that matter, as it truly exists, is inert or incapable of spontaneous motion, organization, life, or thought, would be flatly to contradict the facts: because the real matter, posited in action, and active in our bodies and in all other instruments of action, evidently possesses and involves all those vital properties. . . . It must evidently have been perfectly fitted to produce everything which it actually produces; and it may therefore be decorated retrospectively, by a Chinese piety, with all the titles won by its children; indeed, these its eventual manifestations are the sole index which we possess to its intrinsic nature."[27] Since matter is the principle of genesis and the true arbitrer of fortune, it has often been what men have symbolized under the name of God.[28]

Such a materialism amounts to saying there is a world, and human life is part of it. One need not long wonder that every thinker is brilliantly and triumphantly convicted of it. For the moralist this is the beginning and the end of natural wisdom. Yet the natural philosopher—and Mr. Santayana is content to travel a little way with him—is driven to ask a deeper question: How much can sense or science reveal concerning the dark engine of nature? Within what limits does any description of nature, picturesque or scientific, retain its relevance to animal faith and its validity as

[23] P. 82.
[24] P. 140.
[25] Pp. 26, 18.
[26] P. 200.
[27] Pp. 137, 187.
[28] P. 205.

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knowledge of fact, and at what point does it become pure speculation and metaphor?[29] Our moralist could remain on essentially Aristotelian ground; but once he turns naturalist he finds himself enmeshed in the toils of the critical philosophy. From the transcendental point of view he must criticise the claims of experience and science to be true knowledge. Bravely he sets forth as an empiricist. "By transcendental reflection I understand reversion, in the presence of any object or affirmation, to the immediate experience which discloses that object or prompts that affirmation. Transcendental reflection is a challenge to all dogmatism, a demand for radical evidence."[30] But since immediate experience can only be of essences, the toils of Locke seem closing about him. The only escape is into the arms of transcendental faith, which demands a world to be posited and described. *Im Anfang war die That!* And if action be not an illusion, several properties *must* belong to substances and the world they compose.[31] The hunt grows exceedingly dialectical, and Mr. Santayana proceeds to a transcendental deduction of nature. The pages which follow might have been penned in Jena a century ago; and one is hardly surprised, once one has grown accustomed to Mr. Santayana speaking from a German *Katheder,* to come upon romantic arguments. "We may therefore confidently attribute the forward tension proper to our life to all the rest of nature, down to its primary elements, without attributing to those elements, or to that total, any specifically human quality. . . . We may therefore appeal to our experience of action on the human scale to suggest to us the nature of action even in the heart of matter, which a mere diminution of mathematical scale or use of the microscope may never reach."[32] And thus nature, for Mr. Santayana too, turns out, at least metaphorically, to have free will.[33] Is this but the latent idealism of materialists, or has our moralist turned natural philosopher been drinking too deep of the heady draught of modern physics? Dubious of recording what nature is, he follows the more cautious course of prescribing what she must be. And once again, what she transcendentally must be, it turns out, is just what experience reveals her as being. "A world in which action is to occur," runs the summary of the dialectic, "must be external, spatial, and temporal, possessing variety and unity. Action, when rational, presupposes that the transformations of substance are continuous, quantitatively constant, and regular in method; and that

[29] P. 7.
[30] P. 8.
[31] P. 9.
[32] P. 91.
[33] P. 195.

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the spirit, without being a part of that material world, is the consciousness proper to one of the agents there.'' [34]

Above all, in positing substance as the dark principle of existence, the practical intellect imposes upon it an essential contingency and instability. ''Its secret flux involves at least as many contrasts and variations as the course of nature shows on the surface. Otherwise the ultimate core of existence would not exist, and the causes of variation would not vary. But how shall that which puts on this specious essence here and not there, be in the same inner condition in both places? Or how shall that which explodes now, have been equally active before? Substance, if it is to fulfil the function in virtue of which it is recognized and posited, must accordingly be for ever changing its own inner condition. It must be in flux.'' [35]

This flux of matter imposes movement and change on a spirit addressed by its own genius rather to the eternal. It is characteristic of Mr. Santayana's world that in it change and existence should present a major problem. Why are not all essences eternally present to the unclouded intuition of spirit? Why do some possess that peculiar urgency for practice we call embodied existence? He feels it necessary to argue at length that change is real, that there must be a principle of change to account for the instability of spirit's observations. And matter all but dissolves into a name for the fact of change itself. ''Matter is the invisible wind which, sweeping for no reason over the field of essences, raises some of them into a cloud of dust: and that whirlwind we call existence.'' [36]

Matter thus not only possesses a life of its own, it is the very life of nature. As such, it needs no external time in which to work its wonders, physical time being indeed but another name for its native instability.[37] The terms of its change are natural moments, events exemplifying a single essence. Possessed of a forward tension, each natural moment leads to another; as if ashamed at the irrationality of having one form rather than another, matter hastens to the exchange; and this haste is its whole reality. Such moments are involved in a web of lateral tensions from companion moments; all nature seems to be a mechanism of circumstances. That the world is in truth such a universal mechanism Mr. Santayana no longer confidently affirms; such an hypothesis he now treats as mere speculation. He is far more concerned to insist on the spontaneity and groundlessness of the flux, its primeval plastic stress, its sole creativity.[38] To drag essence from its happy heaven to regulate with

[34] Pp. 10, 42.
[35] P. 15.
[36] P. 94.
[37] P. 84.
[38] Pp. 99, 109.

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inexorable law the dull course of existence were a violence from which his loyalty shrinks.

It is at this point that the argument, like the flux of nature, deserts one essence for another. When the forms of events are envisaged, transcendentalism gives way to empiricism. It is after all for experiment and science, not for logic, to discover what sort of matter matter is.[39] To the essence of an event, the order of its moments, Mr. Santayana gives the name of *trope;* and the moralist's examples are, characteristically, dramatic events like the life of a man or a battle. Some tropes like birth and death are habitual and ingrained in nature. It is this regular repetition which alone saves the flux from chaos, by embodying a universal mechanical trope which makes knowledge and science possible. Nature is full of coiled springs and predestined rhythms; of mechanisms so wound up that, as soon as circumstances permit, they unroll themselves through a definite series of phases. Yet even such tropes, constantly repeated and therefore mechanical, remain contingent and arbitrary: they might have easily been otherwise, and each occurrence is spontaneous and original. In so far as the laws of nature are considered more rigid than habits of the flux, they are but human artifices of notation.[40] "Belief in law when hasty is called superstition or when more cautious empiricism: but the principle in both cases is the same. Both take expectation for probability; and what probability can there be that an expectation, arising at one point, should define a law for the whole universe? Expectation is an animal attitude resting not at all on induction and probability, but on the fact that animals are wound up to do certain things and vaguely but confidently posit a world in which their readiness may become action." [41] The uniformity of nature is only a postulate of action and reason, which contingent, substantial, and original facts may at any point disallow.[42] There is hence no necessity in the relation between cause and effect, and no assurance that law is constant.[43] "It follows that whenever a trope of any sort has been distinguished and found to prevail in nature, as far as our knowledge extends, it need by no means prevail beyond the limits of this domesticated region, nor above or below the level of our human sensibility. It need not even exclude anomalies and outbreaks of chaos in the interstices of the prevalent tropes." [44]

Moreover, these mechanical laws, even when reasonably stable,

[39] P. 196.
[40] P. 110.
[41] P. 111.
[42] P. 110.
[43] P. 111.
[44] P. 114.

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are but human measures of events, habits of nature selected to serve action. A mathematical skeleton may indeed be traced within the body of nature; "but it is no skeleton in its operative function, like that of an animal; it is no rigid substance within the soft substance of events; it is only a trope, which the thrifty mind selects from the tangle of relations which hold those facts in the mesh of existence." [45] Hence no trope can be exclusive or fundamental. Mathematical tropes may pervade the realm of matter, supporting occasional moral and esthetic tropes without interrupting them.[46] Nor can the discovery of a rhythmic repetition, a natural law, explain why or how a thing happens. The tropes which mark the obvious metres of nature tell nothing of the inspiration, the secret labor, or the mechanism which brings them forth.[47] For like his predecessors in the empirical tradition, Bacon and Locke, Mr. Santayana has no doubt that nature has her latent processes and real essences, inscrutable to man. "Did we really wish to understand, we should inquire into the inner elements of a mutation in any one of its instances: because a thing must happen each time by a concourse of motions there, and not because the same thing happens also in other places." [48]

Thus at the last Mr. Santayana does not escape the legacy left by Locke: the spectrum of sense and the categories of thought are not imposed upon man by the world, but are original creations of the psyche. "Surely pleasure and pain, hunger, lust, and fear, do not first reside in external objects and pass from them into the mind; and these are the primary, typical data of intuition. All the rest—colors, sounds, shapes, specious spaces and times and sensations of motion—is hatched in the same nest; it all has a similar psychic seat and dramatic occasion. . . . The psyche is a poet, a creator of language; and there is no presumption that she will perceive material things, including her own substance and movement, at all in the terms or in the order and scale in which they exist materially. On the contrary, only the reactions of her organism are represented in her feelings. The whole of life is a predicament, complex and prolonged; and the whole of mind is the cry, prolonged and variously modulated, which that predicament wrings from the psyche." [49]

[45] P. 112.
[46] P. 112.
[47] P. 125.
[48] P. 118.
[49] Pp. 159–160. Cf. "Mind comes to enrich the essence of the world, not to reproduce it. . . . The essences given to spirit are forms of imagination and thought: they never were and never will be the essences of things; and it is only by poetic licence and conventional symbolism that we are compelled to clothe things in the garb of our sensations," *Realm of Essence*, pp. 132, 136.

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When the setting of human life in the life of nature is considered, however, Mr. Santayana returns from transcendental and empirical excursions to a sober Aristotelianism. Here the concern of the moralist is to render unto the psyche those things that are the psyche's, and unto spirit those things that are of the spirit. "I will beg the reader to distinguish sharply two levels of life in the human body, one of which I call *the spirit* and the other *the psyche*. By spirit I understand the actual light of consciousness falling upon anything—the ultimate invisible emotional fruition of life in feeling and thought. On the other hand, by the psyche I understand a system of tropes, inherited or acquired, displayed by living bodies in their growth and behavior."[50] The psyche is thus a habit in matter, and for a scientific psychology behavior is the only conceivable seat of mind.[51] "The whole life of the psyche, even if hidden by chance from human observation, is essentially observable: it is the object of biology. Such is the only scientific psychology, as conceived by the ancients, including Aristotle, and now renewed in behaviorism and psycho-analysis."[52]

Yet the psyche has also an inner invisible experience, a thin flux of consciousness, which is the life of spirit, a commentary on events in the language of essence.[53] The existence of this commentary makes possible a second kind of psychology, literary psychology, more congenial to the moralist than the scientific variety, and much beloved of Mr. Santayana. Consciousness is the most highly conditioned of existences, an overtone of psychic strains, mutations, and harmonies.[54] All action, all struggle, desire and intelligence, even reason itself,[55] are the complex tensions of matter, the life of the psyche; conscious spirit is the chorus celebrating in appropriate measures that bodily life. "Existence and movement, even in spirit, are therefore the work of matter; while the perception, the enjoyment, the understanding of both matter and spirit are the life of spirit itself. . . . It is the body that speaks, and the spirit that listens."[56] As Mr. Santayana has put it in one of his unforgettable metaphors, "there are not two parallel streams, but one stream which, in slipping over certain rocks or dropping into certain pools, begins to babble a wanton music; not thereby losing any part of its substance or changing its course, but unawares enriching the world with a new beauty."[57]

[50] P. 139.

[51] P. 123.

[52] P. 149.

[53] P. 158.

[54] P. 155.

[55] P. 147: "Reason is not a force contrary to the passions, but a harmony possible among them."

[56] P. 146.

[57] *Realm of Essence*, p. 134.

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But, alas, a great part of human thought has been unable to discriminate the rôles of matter and spirit. Matter in its waywardness has repelled the moralist, while its dark unfathomable nature has held little lure for the metaphysician. Men have sought to honor spirit by clothing it with matter's authority; and the issue has been tragic. The heirs of the saints have assumed the pomp and circumstance of power; worldliness has at length corrupted the fabric of the church. Forgetting its true glory, these false devotees of spirit have transformed it into but another name for matter. Such treason to spirit is the worst of philosophic crimes; and Mr. Santayana rapidly sketches in the outlines of this degradation. As Plato, having delineated the true state, proceeds to depict its corruption, so he narrates the decline and fall of materialistic wisdom. And the end is reached in that objective idealism which, having completed the identification of spirit and existence, exhausts all its loyalty upon existence and has no devotion left for essence. To liberate spirit from such a dungeon, to cast off the materialistic shackles which professed idealists have rudely laid upon her, was the stern duty which led the moralist into the realm of matter. To matter belong the kingdoms and the glory of this world; but spirit's kingdom is not of this world. Born in the flesh, and ineluctably linked to the flesh, she yet in the flesh shall see God. Woe unto those who seek to tempt her from her true vocation!

What shall be said of this discourse on matter that is a paean to spirit, of this materialism that seeks to conserve all the insights of supernaturalism? Had not Mr. Santayana so disarmingly forestalled the impeachment,[58] it would be easy to wonder at its eclecticism, and to marvel at the ease with which the lions and the lambs of philosophic history are made to lie down with one another. It has been recorded that Mr. Santayana's essences were sired by John Locke out of Plato; the bearings of his matter seem more richly quartered. The observant eye can there discern the arms of Aristotle, Fichte, and Schopenhauer as well as of Locke and Hume. So generous a heredity may be welcomed in one who takes truth where he finds it; but narrower partisans must needs grow restive, and pride of family may raise the cry of the bar sinister. To the Aristotelian it will ever seem a pity that Mr. Santayana has quaffed so deeply of modern empiricism, and escapes the penalty of utter psychologism only by the seductive transcendental path. Indeed, it is patent, to all but Mr. Santayana, that he has not escaped, but is now deeply mired in that bog of paradox, confusion, and ultimate inexplicability through which trickles the thin stream of British empiricism; that the flaw which marred the first volume of the *Life of Reason* stands revealed, in the *Realms of Being,* as a progressive malady; and that

[58] *Realm of Essence,* p. xviii.

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today he must needs fight shoulder to shoulder with, say, Mr. Bertrand Russell against a common sea of troubles. The less tender-minded naturalist will not cease to mourn the gulf that is digged between matter and essence, and to find compromising and half-hearted the nostalgic longing for Platonic eternity in an alien world. To him Mr. Santayana will be only what he so pre-eminently is, a moralist and a poet, victorious in self-knowledge and self-expression; and his hypostatization of a realm of essence but another instance of that incurable egotism that writes large upon the firmament the heart's desire. To such a whole-hearted naturalist, it can not cease to be a marvel that Mr. Santayana, so deeply sceptical of all else, should still in this day preserve so touching and unclouded a faith in the incredible psychology of John Locke; that, wisely banishing it from the life of the psyche, for which Aristotle and our experimentalists suffice, he should yet suffer it to reign unchecked in his metaphysics, parcelling out the realms of being and ruling the communion of spirit and essence with unquestioned authority. However, but little good may come of charges and counter-charges of "mere failure in discernment"; we should rather give thanks that the world has been enriched with another perspective, and if the lines seem a little awry the colors are all the richer.

It is not after all as an idolatrous metaphysician that Mr. Santayana would wish to be judged, but as a moralist; and in truth his metaphysical dualism between matter and essence is at bottom moral, the expression of a whole-hearted allegiance to spirit. It is in such human and dramatic terms that the essential problem posed by his insight must be couched. Mr. Santayana has of late confused his friends and confounded his critics by seemingly forsaking the life of reason to dally with the spiritual life. What would he have? Is it the part of wisdom to be a rational animal, or is it rather our true destiny to be as pure spirits? His own explicit preference lies still with the Greeks;[59] but the spiritual life has certainly become the major theme of his discourse, and the life of reason now plays but a faint obligato. Is this because of the seductive appeal of the spiritual life as a topic for literary exploitation and jeweled language, or does it represent a surrender to an undoubted native bent? Like Aristotle, Mr. Santayana seems unable quite to decide between the life of practice and the life of *theoria,* the life of the psyche immersed in matter and bent on action and the life of the spirit bathed in essence and given to contemplation; and, also like Aristotle, he has not told us how the same body is to live the two lives. Here is a problem for the moralist to elucidate, if he will and can. Is it too much to hope that in the remaining

[59] *Realm of Essence,* p. 65.

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realms of being these two levels of living will be somewhat more nicely adjusted to each other? Further illumination as to Mr. Santayana's metaphysics patently awaits the harmony of his loyalties.

The main lines of such a harmony are perhaps indicated in the trinity of essays called forth by Mr. Babbitt's late irruption.[60] Beneath the gentle mockery and ironic advice there runs a deeper current: the balance of the claims of spirit against a wise and rational acceptance of the materials which the accidents of modernity present for moral integration. It is true that the gist of modern history, the many-sided insurrection of the natural man with all his physical powers against the regimen of Christendom, has been a great surrender of the spirit to the flesh, of the essence for the miscellany of human power. It is true that in gaining creature comforts, a respectable exterior, and intellectual liberty, we have reduced spirit to an instrument, and so lost its genuine fruits. But why be dissatisfied? Virtue and happiness are still possible; the particular elements which shall enter into the harmony of the life of reason are nowhere prescribed, and to reason itself are indifferent. To exchange one's native religion and morality for a foreign one is merely to blight in oneself the only life that is really possible. Then, too, understanding relieves a truly intelligent man from fussiness about social institutions and conventions; they are absurd, yet absurdity is not incompatible with their natural function, which may be indispensable. "But in philosophy, when ultimately the spirit comes face to face with the truth, convention and absurdity are out of place; so is humanism and so is the genteel tradition; so is morality itself."[61]

Morality is the principle of all choices in taste, faith, and allegiance. It is the life of the psyche, illuminated by reason and guided by intelligence. It is that aspect of experience which perceives and pursues ideals. But spirit does not choose, neither does it pursue: it sees. To it is given vision, *theoria*. It beholds life and nature and the vast realms of essence spread out before it as in a spectacle. For the spiritual life is now for Mr. Santayana—it was not ever thus, as readers of *Reason in Religion* will recall—the purely intellectual life, and spirituality but the esthetic contemplation of the intellect.[62]

[60] *The Genteel Tradition at Bay.* George Santayana. New York: Scribners. 1931. Pp. 74.

[61] *Genteel Tradition,* p. 71.

[62] "Spirituality is only a sort of return to innocence, birdlike and childlike. Experience of the world may have complicated the picture without clouding the vision. In looking before and after, and learning to take another man's point of view, ordinary intelligence has already transcended a brutal animality; it has learned to conceive things as they are, disinterestedly, con-

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If then it be asked how morality and spirit, how choice and not choosing comport, Mr. Santayana would seem to answer, as practice and vision. Like the true patriot, the philosopher must plant his feet firmly in the native soil of his own preferences and allegiances, and from that vantage-point survey the world. "Such a free mind might really have understood the ancients, and might have passed grandly with them into a complete naturalism, universal and impartial on its intellectual side (since the intellect is by right all-seeing) but in politics and morals fiercely determinate, with an animal and patriotic intensity of will, like Carthage and Sparta, and like the Soviets and the Fascists of to-day." [63]

What he earlier celebrated as the life of reason Mr. Santayana now calls morality; religion, art, and science are alike comprised within the practice of the psyche. The burden of his present writings, addressed to empiricists and idealists, to humanists and Christians, to Plato himself, is that morality is not enough. One must live by rational choice, one must understand by knowledge, but to live harmoniously and even to know are not enough. One must also *see;* and in that vision life finds its consummation and reason its crown.

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BOOK REVIEWS

L'Evolution et la Structure de la Doctrine de la Science chez Fichte. MARTIAL GUEROULT. 2 vols. (Publications de la Faculté des Lettres de l'Université de Strasbourg, Fasc. 50, 51.) Paris: Société d'Edition, Les Belles Lettres. 1930. 383 pp.; 252 pp.

This work in two volumes with a 150-page introduction is a scholarly and masterful interpretation on the part of M. Gueroult of Fichte's philosophical thought in its structure and growth.

The introductory material which treats of Fichte's relations to contemporary and antecedent philosophies is excellently done, and is executed with a scholarship that indicates on the part of the author a first-hand acquaintance with Kantian thought and traditions. More particularly he presents the relation of the problem to which modern philosophy fell heir, i.e., the explication of experi-

templatively. Although intellect arises quite naturally, in the animal act of dominating events in the interests of survival, yet essentially intellect disengages itself from that servile office (which is that of its organ only) and from the beginning is speculative and impartial in its own outlook, and thinks it not robbery to take the point of view of God, of the truth, and of eternity. . . . The fruition of happiness is intellectual, or as perhaps we should now call it, esthetic." *Genteel Tradition*, pp. 65–66.

[63] *Genteel Tradition*, p. 8.

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ence in terms of a fundamental unitary principle, to the works of Spinoza, Leibniz, Kant, and the lesser luminaries, Herder, Lessing, Reinhold, and Maimon, the obstacles they had to meet and overcome, and the degree to which they were successful. One feels at times that the material is used, too narrowly perhaps, *ad majoram gloriam* of Fichte; for the actual dependence of Fichte upon his predecessors is not always clearly indicated. Nevertheless this introductory part is informative in its own nature, and affords the reader an opportunity of viewing these thinkers in a new setting.

The aim of Fichte's philosophy, we learn, is to make explicit the hidden factors of a self-conscious experience. These factors reduce themselves to three principles of varying degrees of importance. The first principle which is the most fundamental is unconditioned in its form and contents, the second is conditioned in its contents, but unconditioned in regard to its form, whereas the third is conditioned in its form, but is unconditioned in regard to its contents. Taken together they are sufficient to account respectively for the common elements in thought and activity, the nature of reflection, and the constitution of the external world. Although referred to as principles, these factors are an activity, that produce all of reality as it is known to us in the fields of speculation and moral activity. From a minute investigation of the third, we are enabled to derive *a priori* a series of theses and antitheses that establish for us the further nature and conditions of theoretic activity and moral activity.

But when we try to make clear to ourselves the course of Fichte's thought, we are confronted by several separate and distinct accounts of his system covering a period of ten years. These writings, according to Gueroult, tend to fall into three separate stages, each of which represents distinctive features of its own. Although, according to Fichte, there is no difference in philosophical thought between his earlier writings and his later ones, yet according to Gueroult "the three stages of the Doctrine of Knowledge, should not be regarded as a successive confirmation of a consistent point of view, but rather as a successive refutation of different points of view" (Vol. II, p. 162). The task that the author now sets himself is the delineation of each separate point of view, showing how the later ones repair the deficiency of the earlier ones. In the first place, the earlier aspects of Fichte's thought are epistemological, whereas the latter aspects are metaphysical and religious. As Gueroult puts it: Fichte's philosophy is "no longer contented with studying life, it gives us life" (Vol. II, p. 189). To appreciate the evolution of Fichte's thought that is indicated here, let us present briefly the distinct aspects that Gueroult holds to be characteristic in each of the three stages.

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In the first stage, we are informed that the *self* is the source of reality; it is the cause of itself, as well as the cause of the physical world. The Absolute exists only in ideal, and is not stressed until the second and third stages. But, according to Gueroult, Fichte soon realized that the philosophical basis of reality was too narrowly conceived. As explanatory of experience, Fichte has arbitrarily selected one of its aspects, namely, the self, to explain both itself and the objective world. As a consequence, he fails to account for either. Secondly, Fichte has given no satisfactory explanation of the social and natural environment. Merely to regard the not-self as that which limits the self is to forgo an explanation of those things that limit.

The second stage of Fichte's philosophy which is reflected in the *Wissenschaftslehre* of 1801 is an attempt to repair the shortcomings of the first by advancing a more positive explanation of the not-self, i.e., of all that stands in opposition to the self. It is in this stage that the concept of the Absolute begins to play an important part by replacing the concept of the self as the *prius* of reality. Contrasted with the first stage, this second stage is less subjective, and emphasizes the actuality of the Absolute rather than its ideality. Thus the Absolute is seen in its more positive aspect of furnishing the contents to man's moral life.

Although this stage represents an advance over the first, yet it is not without its own difficulties, for in viewing the not-self as the Absolute, it tends to introduce a realism that emphasizes as necessary to the self, an unknowable and unattainable entity, that threatens to become as unintelligible and inaccessible as Kant's thing in itself. This not-self must be further qualified and made accessible to thought.

In the third stage of the Doctrine of Knowledge, reflected in the *Wissenschaftslehre* of 1804, and his later writings, Fichte evolves, according to Gueroult, a satisfactory synthesis, that reconciles the fluctuation between self and not-self. He sees this synthesis to consist in the infinite activity of the Absolute which is transcendent to both self and not-self alike. It is neither reason nor thing, but comprehends both as its manifestations. The primacy of moral activity that dominated the first stage of Fichte's thought now gives way to the concept of Life. In contrast to the earlier view, this latest view is definitely a religious one. The Absolute becomes spoken of as God; and nothing exists outside of his being. The subordinated principle of unconditioned form is now known as the Word through which is constructed, in representation, the world in its multiplicity of aspects. And to it, the third principle of unconditioned contents supplies the features of brute objectivity.

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The practical import of this third stage for man is wisdom and the way of life; no longer is the moral activity viewed narrowly as man's *summum bonum*. Beatitude is the concept representing the true life; it represents a return to unity; "loving the one, immutable and eternal" (Vol. II, p. 190); it is not absorption into God, but a union with His Life. And thus within the contents of the religious life fall morality and knowledge as means, but not as the sole or the only means; wider still is the conception and practice of philosophy that Fichte has offered in his later writings. It is this third and final stage of Fichte's thought that Gueroult regards as the consummation of his endeavors. Whether intended or not, it represents at least a considerable change in expression and results from the earlier expositions (Vol. II, p. 162).

It is impossible to do justice to the author in all that he has to say. Undoubtedly we are presented with an exposition of Fichte's philosophy which is superbly clear and masterfully handled. Although he covers in part much of the ground that is admirably traversed by X. Léon's pioneer work, *La Philosophie de Fichte*, nevertheless he handles his subject-matter in its infinite variety of detail, which Léon does not do. He has thoroughly acquainted himself with the abstruse arguments of the *Wissenschaftlehren*, and succeeds in acquainting the reader with their meaning and place in the development of Fichte's thought. The great value of his work lies, I believe, not so much in the thesis of evolution that it sets out to prove, as it does in its presented simplification of Fichte's difficult philosophy. In this respect, it can be readily resorted to as a commentary (more easily, had it an index) to the writings of Fichte themselves. Together with the three latest volumes of X. Léon, *Fichte et ses Temps*, it comprises an exhaustive study of Fichte's thought and his relation to his contemporaries that will be difficult to replace, or to add to.

Its faults are few, but chief among them are (i) a somewhat too close adherence to the "grand tradition" of viewing modern philosophy as pivoting solely around the problems of Kant, and (ii) its tendency towards an imposing Germanic architectonic in its treatment of subject-matter. It does succeed, however, in treating Fichte, not as a corridor to the philosophy of Hegel, but rather as a thinker to be understood and respected for himself; and in having made positive contributions of his own towards a philosophy of life.

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Locke, Berkeley, Hume. C. R. MORRIS. New York: Oxford University Press. Oxford: Clarendon Press. 1931. 174 pp.

Aside from a dozen pages on their lives and two dozen on their moral-political-economic views (mostly too sketchy to be of much value), this small book is devoted to analysis of the theories of knowledge of Locke, Berkeley, and Hume. Mr. Morris treats Locke and Berkeley more successfully than Hume,—as indeed is true of practically all critics who seek to appraise the three chief figures in classic British empiricism. Hume's thought was so intricate and so full of cross-currents and unrelated motivations that it is more difficult to summarize and estimate than that of his predecessors.

The chief points in Mr. Morris's analyses may be briefly indicated. Mr. Morris treats Locke's attack on innate ideas as merely a means of clearing the ground of the "depraved Aristotelianism" of the seventeenth century. He is here following Professor Gibson; but this account, while true as far as it goes, is most incomplete. He not only fails to relate Locke's thought to the contemporary interests with which Locke professed to be concerned, but also fails to relate the *Essay* to the *Letters on Toleration,* the *Two Treatises of Government,* and the *Reasonableness of Christianity.* On other points his treatment of Locke is more successful. He holds (in line with Professor Woodbridge's discussion of Locke in *Essays in Honor of John Dewey*) that Locke's distinction between ideas of sensation and ideas of reflection was due to a desire for a subject-matter independent of, and hence free of corruption by, our thoughts about that subject-matter. He connects Locke's shift in his meaning for the term "idea" (which is sometimes a mental picture and sometimes a reflective meaning) with the distinction between primary and secondary qualities. He contends that in the treatment of substance Locke ceased to take the clear-cut point of view of a physicist and wrote as a logician. So he might go on to say that the metaphysical scepticism in which the *Essay* terminated came from Locke's retention of certain scholastic doctrines in what started out to be a frankly Newtonian philosophy.

Mr. Morris distinguishes in Berkeley's thought between the elements that were part of his life-long attack on materialism and those that constituted his defence of spiritualism. And he insists, and quite rightly, that Berkeley is more important in the history of philosophy in his rôle as empiricist than in his rôle as idealist. Indeed, as he goes on to show, Berkeley's doctrine that *esse* is *percipi* was a difficulty in the way of idealism and played a lesser part in Berkeley's later thought than in the *Principles* and *Dialogues.* This difficulty was, of course, met by Berkeley through the concept of *notions* as different from *ideas;* but Mr. Morris points out that be-

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cause of this concept Berkeley's later writings were not only less consistent but also less stringent an attack on the rationalism to which he objected in his earliest criticisms of the abuse of science.

Mr. Morris is more in line with conventional criticism when he comes to deal with Hume and shows less ability to re-examine Hume's writings freshly. On two points in particular he follows traditional criticism where that seems to me quite probably wrong. First, he points out that Hume denies that there is any sensible quality in external events from which our idea of cause arises; but he then goes on to say—what does not follow and is by no means an equivalent position—that according to Hume "there is no impression to which the idea of cause corresponds" (p. 130). Yet actually Hume undertook a long search for and finally did find the impression which he believed to be the source of our idea of cause (and indeed his theory that every idea copies an antecedent impression would otherwise be smashed). What he found was not an impression of sensation, but an impression of reflection. It is of a determination of the mind which we all observe in certain conditions that Hume took pains to describe in detail. And while Hume did deny that *necessity* exists outside the mind (for necessity is for him a logical term that denotes how one thing *implies* another, and so is found between premise and conclusion, but not between cause and effect), he did not deny (except in isolated passages that do not fit in with the chief contentions of the *Treatise*) that causation exists apart from mind. He found the origin of the idea of cause in a mental fact that we can observe, and he cautioned us against a too ready application of the idea to other facts. But he believed that the idea may at times be correctly applied to other facts, and even drew up (in section 15 of Part III of Book I of the *Treatise*) a set of rules to guide us in such further application. Secondly Mr. Morris repeats the too common error of taking Hume's denial that there are "real connections among distinct existences" as equivalent to a denial that there really are connections among distinct existences until mental associations establish them. *Real* connections were for Hume one particular type of connection, namely, a logical implication such as he supposed rationalists in general and Cartesians in particular to be asserting to hold between cause and effect. He maintained that no cause *implies* its result, so that only experience can enable us to know what causes what. The causal relation is thus not a *real* connection in Hume's sense of the term. The famous section 14 of Part III of Book I of the *Treatise* has been interpreted so long in line with T. H. Green's mistaken views that critics are not often aware of its Cartesian animus and background. But this old error would disappear under a more fresh reading of Hume in the light of his contemporary continental affiliations.

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Mr. Morris is not fortunate in his one reference to the connection of English and American thought. By some strange blunder he refers (p. 63) to Jonathan Edwards as a "Maryland philosopher"; and he repeats the old story that Edwards was influenced by Berkeley in the construction of his idealistic system, though recent criticism has rather completely disproved the story. The statement (p. 110) that Hume returned to London with Rousseau in 1776 (instead of 1766) is doubtless a merely typographical error.

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AMHERST COLLEGE.

The Enduring Quest. A Search for a Philosophy of Life. H. A. OVERSTREET. New York: W. W. Norton & Co. 1931. Pp. 277.

Nineteenth-century physics and biology, materialistic and mechanistic in their outlook and conclusions, humbled the spiritual claims of man, but have themselves been humbled by the more recent scientific findings. To many minds the twentieth-century upheaval in physical science and the doctrine of emergent evolution seem to warrant a more humane view of nature and human nature. This warrant Professor Overstreet undertakes to read and to interpret its fuller meaning. His book is deliberately written for the larger public of inquiring minds rather than for the specialist, and he seems less anxious to impress his colleagues on the platform than to enlighten the audience in the hall.

Against the oversimplification of a too abstract view of reality, the author advocates "the method of many points of view." Reality is relatedness, and "the true reality is the synthesis of all possible points of view" (p. 36). The argument of the book is that the growing evidence of science sets aside the abstract conception of the world as an eternally set mechanism, and justifies the view of nature as a creative process of ever-richer integration and significance. "The physical . . . impinges upon a wider reality which the physical sciences are themselves powerless to explore" (p. 131). In this expanding understanding of nature, man with his thoughts and purposes serves as a revealer, more informing of the range and character of reality than animals or plants or atoms.

Adopting "actability" as his philosophic test, the author now undertakes the enduring quest of philosophy: seeking the principles which he must respect if he is to make sense of the vast body of manifold facts, the values which he ought to recognize if human life is to be acted out intelligently, the faiths and hopes on which his spirit may venture. Of the "great elementals," he regards the truth-principle as the principle of coherent linkage; the sense of beauty is the instant sense of harmony and fitting together;

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goodness, in turn, is truth and beauty in human behavior: the path of perfection is the path of ever more fundamental integration.

This enduring quest leads the author far afield, with many a paradox, but also with many a vista of "the larger setting." He discourses on love, out of Plato and Cabell, on the will to believe and on Vaihinger's "As If," on the truth of man's romancing, and on the presumption of pessimism. Mysticism is interpreted largely out of R. M. Bucke's *Cosmic Consciousness;* an all too brief chapter discusses encouragingly the fate of values; a venture in theology leads to the idea of God as "the everlasting creative life that moves toward wholeness" (p. 264); and the concluding chapter points to the coming creative synthesis in contemporary thought that is to transform religion, literature, art, social thinking, philosophy. Its view is to be ektropic: seeing nature and human nature not as wound up nor as running down, but as growing progressively richer in content.

In the space at his disposal the reviewer has been able to indicate only briefly the many lines of hearty thought in this vigorously written book. If a critic should question whether the recent turn in physical science is really as encouraging to a spiritual view of reality as some physicists would comfortingly have us think, the author may well reply that he interprets this recent upheaval as the refutation of a too simple abstract cosmology, as the self-vindication of rich and manifold nature. And if one seeks to brush aside Professor Overstreet's humane idealism as mid-Victorian, he retorts that the real mid-Victorians are those who in this age and time are still the spokesmen of a now outworn nineteenth-century materialism.

RADOSLAV A. TSANOFF.

THE RICE INSTITUTE.

Elements of Epistemology. JOSEPH T. BARRON. New York: Macmillan Co. 1931. 225 pp.

Designed to be an elementary text, this volume naturally contains much familiar material. Professor Barron disclaims originality. He states the problems of epistemology in traditional form: (1) the problem of the origin, and (2) the problem of the worth (status and truth) of knowledge (p. 29). And after presenting and dismissing scepticism (Chap. III), he states and criticizes the important historic and current answers to these problems. As solutions of the first problem, he passes in review innatism, intuitionism (Bergson), pragmatism, sensationalism (traditional empiricism), dogmatic and critical (Kantian) rationalism, all of which he rejects. As solutions of the second problem, he reviews

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subjective and objective idealism, critical realism, neo-realism, the coherence and the pragmatic theories of truth, all of which he also rejects. His own conclusions are: (1) empirical rationalism: "With sensationalism it is committed to the view that our knowledge has its origin in sensations. With rationalism it holds that reason coöperates with the senses in the formation of our knowledge" (p. 86). (2) Correspondence: truth is a matter of correspondence to evidence presented to, not manufactured by, the mind (Chaps. XV–XVI).

The book is most clearly written. Uncovering much material, Professor Barron has had to be brief, but he has not been skimpy, and one familiar with epistemology can easily amplify his text so that it would be entirely suited to students in an elementary course on the subject. The parts I found most valuable were the theory of the derivation of concepts by abstractive operations of the intellect (Chap. VIII), and the attempt to vindicate a moderate direct realism without precipitating the difficulties of neo-realism and critical realism (Chap. X, *ff.*). In general, however, the positive doctrines of the book seemed to me much too inadequately analyzed, and the treatment of opposed systems too conventional, and even second-hand. For instance, I missed an unstereotyped understanding of Kant in the treatment of the first problem; Kant's true position here is certainly near to, if not identical with, Professor Barron's own. Again, I missed a careful sympathetic understanding of recent idealistic logic in the treatment of the second problem. Professor Barron's own conclusion here attempts to establish an internal criterion of truth. "The test of the truth of a judgment is ultimately the reality itself manifest to the mind. Our theory thus disposes of the difficulty urged by Montaigne. Our criterion is intrinsic to the truth and is thus its own justification" (p. 184). The essential point is certainly not far from Bosanquet, whose theory of truth, however, Professor Barron dismisses in a few paragraphs (pp. 172–174).

This volume is presented as an introduction to the scholastic theory of knowledge, but, as is obvious from the outline given above, it at least touches upon practically all the main points and outstanding sects in epistemology to-day.

D. W. GOTSHALK.

UNIVERSITY OF ILLINOIS.

Adventures in Philosophy and Religion. JAMES BISSETT PRATT. New York: The Macmillan Company. 1931. x + 263 pp.

To imitate Plato, and in a dialogue to make Socrates the exponent of one's own philosophy, is a difficult undertaking. Pro-

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fessor Pratt has achieved this with remarkable success in the opening chapter, which constitutes a little more than half of the entire volume. The dialogue is clever, witty, and logically always to the point. We can well believe that if the shade of Socrates were actually to meet such a group of contemporary American and British philosophers as is here imagined, he would conduct himself in much the manner portrayed. With gentle but effective irony, he would doubtless lay bare the inconsistencies in the thoughts of the representative Absolute Idealist, Pragmatist, Behaviorist, and American Neo-realist present, as well as in those of Mr. G. E. Moore and the Honorable Bertrand Russell (two characters frankly identified by the author in the Preface). We can well imagine Socrates leading the crude Dr. Behaviorist, who insists that thinking is verbalization and can have no reference to anything beyond present behavior, to a predicament in which he has to admit that his own behavioristic interpretations can have no reference beyond themselves and that in expounding them he is just making noises with his throat. Mr. Russell is also made to squirm frequently. For instance, as the logical outcome of his definition of a physical object as the sum of all its perspectives, he is forced to admit that the place where an object is is the one place where it is not, and that all the places where it is not are just the place where it is. Characteristic of Socrates in more serious moods is the passage at the close of the dialogue where he earnestly insists upon the reality of the spiritual, and predicts that no philosophy can long remain credible which would destroy man's faith in his own self.

We may not, however, be convinced that Socrates would find that the proper solution of all difficulties is metaphysical Dualism, after the manner of Professor Pratt's own *Matter and Spirit*, and Professor Lovejoy's *Revolt against Dualism*, to which latter particular indebtedness is acknowledged. No criticism of the defects in rival theories can of itself guarantee that one's own view will on examination prove to be free from equal difficulties. In fact, Professor Pratt in this volume does nothing to refute the suspicion that metaphysical Dualism is much stronger on the offensive than it is on the defensive, and that it is not itself a very definite or plausible position. However, Professor Pratt doubtless realizes that in this book his argument is chiefly destructive. In the Preface he points out that it would be possible for as much fun to be made of his own philosophy in the same way if any one cared to try. There is little that is new in the first chapter for those who have been reading recent polemical literature in metaphysics. It is, however, a capital piece of popular writing, to be recommended to general readers who wish to know what is going on in contemporary philosophy. Teach-

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ers of undergraduates and of first-year graduate students will find it useful as a reference, as well as for illustrative material.

The remaining chapters are: a dialogue on contemporary theological issues; a discussion of immortality; an argument between a fundamentalist and a liberal missionary; and an imaginary Buddhist Sutta, in which Gotama states views more in harmony with dualistic metaphysics than are to be found in existing Buddhist literature. There is a certain unity in the book as a whole. All the chapters center about the self and the life of the spirit. Although they fail to establish metaphysical Dualism, they show convincingly—as it seems to me—that personality is real and that its values can neither be reduced to the motions of electrons and the secretions of glands, nor to logical abstractions that merely subsist.

WILLIAM KELLEY WRIGHT.

DARTMOUTH COLLEGE.

S. Agostino. Pubblicazione commemorativa del XV centenario della sua morte. By AGOSTINO GEMELLI, *et. al.* Milan: Società Editrice "Vita e Pensiero." 1931. 510 pp. (Also published as a special supplement to the *Revista di Filosofia Neo-Scolastica,* Jan., 1931.)

This is a coöperative volume produced by eighteen members of the philosophical faculty of the Università Cattolica del Sacro Cuore. The articles cover a wide variety of topics, including Augustine's conception of history (which is theological, not philosophical), self-consciousness, the act of faith, the mystical ascent to God, art, astronomy, pedagogy, falsehood, marriage and property, his relationship to Roman and to patristic law, and his influence upon Dante, Petrarch, Vico, and (negatively) the Jansenists. The articles are all carefully documented, and seem to be thorough in their scholarship. The authors understand the difference between historical interpretation and evaluation, and the worth of their researches in the former will be recognized by all. When it comes to evaluations, the authors, as might be expected, regard St. Augustine as one of the greatest Fathers of the Church, who preceded and to some extent foreshadowed the definitive development of scholastic philosophy and theology by St. Thomas Aquinas. They affirm that Cartesians, Protestants, and others who have thought to go back of Thomism to Augustine for a different point of view, are in error. So far as passages in the writings of Augustine at all reveal Platonic, neo-Platonic, Manichean, idealistic, immanentistic or pantheistic tendencies contrary to the spirit of orthodox scholasticism they should be regarded as evidences of the immaturity of Catholic doctrine in his time, and not as characteristic of the real drift of his thought,

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which is along the direct line of the development of Catholic theology and philosophy.

WILLIAM KELLEY WRIGHT.

DARTMOUTH COLLEGE.

The Physical Basis of Rime: An Essay on the Æsthetics of Sound. HENRY LANZ. Stanford University Press. 1931. Pp. xiv + 365.

It was, we learn in the preface, an interest in realistic logic and its possible applications to esthetics that inspired the studies of which this book is the outcome. Certain sections, dealing with the objective basis of rhythm, bear witness to this earlier interest. But in the main the author's preoccupation here is with rhyme—its origins, uses, nature, and value; and especially its close affiliations with music. Indeed the central thesis of the volume might be said to be the contention that rhyme is a kind of melody. Ingeniously, learnedly, this thesis is developed, together with subordinate related theses. The use of illustrations from Russian poetry in addition to the more usual use of French, English, German, Greek, and Latin quotations, is noteworthy. This wide knowledge of literatures, manifested throughout, is happily combined with sensitive appreciation of subtleties of poetic effect. Yet the use to which both are put is a severely scientific one. In a word, any one in search of an illuminating and scholarly treatment of the technical aspects of verse could scarcely do better than consult this work.

HELEN HUSS PARKHURST.

BARNARD COLLEGE.

JOURNALS AND NEW BOOKS

PHILOSOPHICAL REVIEW. Vol. XL, 6. Possible Forms of Realism: *Durant Drake.* An Unpublished Sermon of Bishop Berkeley: *John Wild.*, Kant's Theory of Aesthetics: *H. N. Lee.* Discussion—The Time-Retarding Journey: A Reply: *A. O. Lovejoy.*

MIND. Vol. XL, No. 160. A Psychological Approach to Space-Time: *C. L. Morgan.* Experimental Logic: *S. Hook.* Locke and Berkeley's *Commonplace Book: R. I. Aaron.* Logical Constructions (II): *J. Wisdom.*

REVUE DE PHILOSOPHIE. 31e Année, Nos. 4 et 5. Numéro Spécial: Travaux du Laboratoire de Psychologie de l'Institut Catholique de Paris. L'Intuition du spirituel: *G. Dwelshauvers.* Etude sur l'interprétation visuelle des images tactiles: *G. Haby.* Automatisme et volonté: *R. Maçquart.* Essai sur le rythme musical: *P. Morlet.*

Fox, Morris: The New Theory of Ideas. Chicago: Privately printed. 1931. 41 pp.

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Hill, Mabel; editor. Wise Men Worship. A Compilation of Excerpts from Scientists, Philosophers, and Professional Men Concerning Science and Religion. With a Preface by Wm. Lyon Phelps. New York: E. P. Dutton & Co. 1931. 134 pp. $1.00.

Hönigswald, Richard: Grundfragen der Erkenntnistheorie. Kritisches und Systematisches. (Beiträge zur Philosophie und ihrer Geschichte. I.) Tübingen: J. C. B. Mohr (Paul Siebeck). 1931. 171 pp. 9.60 M.

Reid, Stanley B.: The Rôle of Logical Form in Propositions about Existence. (University of California Publications in Philosophy, Vol. 12, No. 4, pp. 225–300). Berkeley: University of California Press. 1931.

Robinson, Howard: Bayle, the Sceptic. New York: Columbia University Press. 1931. x + 334 pp. $4.25.

Scholz, Heinrich: Der Platonische Philosoph auf der Höhe des Lebens und im Anblick des Todes. (Philosophie und Geschichte 34.) Tübingen: J. C. B. Mohr (Paul Siebeck). 1931. 40 pp. 1.50 M.

Brinton, Howard H.: Creative Worship. (Swarthmore Lecture, London, 1931). London: George Allen & Unwin, Ltd. 1931. 94 pp. 2s. 6d.

Davis, Harold T.: Philosophy and Modern Science. Bloomington, Indiana: The Principia Press. 1931. xiii + 335 pp. $3.50.

Lenzen, Victor F.: The Nature of Physical Theory. A Study in the Theory of Knowledge. New York: John Wiley & Sons, Inc. 1931. London: Chapman & Hall, Ltd. xii + 301 pp. $3.50.

NOTES AND NEWS

Attention is called to the October number of *Logos* (Bd. XX, Heft 2) which as a centennial tribute offers material of exceptional value for the study of Hegel. It publishes the *Erster Entwurf einer Philosophie des subjektiven Geistes* which Hegel wrote down at Bern in 1796. A facsimile page of the original manuscript gives some impression of the arduous task of the editor, Johannes Hoffmeister of Kiel. In addition the number contains articles by Hermann Glockner on *Hegelrenaissance und Neuhegelianismus*, Karl Larenz on *Hegels Dialektik des Willens und das Problem der juristischen Persönlichkeit*, Richard Kroner on *System und Geschichte bei Hegel*, and by Käte Nadler on *Hamann und Hegel. Zum Verhältnis von Dialektik und Existentialität*. These articles, besides discussing basic themes of Hegelianism in a substantial way, are particularly useful for the illuminating way in which they set these themes in relation to recent German thought.

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Volume XXVIII. No. 18. August 27, 1931.

Value as an Objective Predicate. RALPH BARTON PERRY.

Beauty and Art. ISRAEL KNOX.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 19. September 10, 1931.

Sceptical Notes on the Sense-Datum. C. DE BOER.

Value as Simply Value. RALPH BARTON PERRY.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 20. September 24, 1931.

Implications of the *Life of Reason*. HUGO T. SAGLIO.

Some Remarks in Defense of the Operational Theory of Meaning. GEORGE BOAS and ALBERT E. BLUMBERG.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 21. October 8, 1931.

Types of Physical Determination and the Activities of Living Organisms. RALPH S. LILLIE.

Artist, Philosopher, and the Ideal Society. GEORGE W. BEISWANGER.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 22. October 22, 1931.

Neutralism and Radical Empiricism. C. V. TOWER.

Our Conscious States Picture and Apprehend our Nervous Processes. SIDNEY E. MEZES.

Book Reviews. Journals and New Books. Notes and News.

Volume XXVIII. No. 23. November 5, 1931.

Superstition. ALEXANDER LESSER.

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THE JOURNAL OF PHILOSOPHY

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A DEFINITION OF VALUE

IT will be useful, perhaps, by way of giving direction and clarity to the following discussion, if I should state at the outset the definition of value that I am interested in making as acceptable as possible. The term "value," then, although grammatically a noun, seems to me to be logically a relational adjective indicating, in any given case, some immediate affective quality: this quality being psychologically a function of the stimulus situation, the physiological responses underlying the intensity of hedonic tone suffusing the total experience, and the active feeling-attitude of acceptance or rejection on the part of the organism as a whole. It is applicable to, and its meaning is exhausted in, all those relative, concrete, determinate situations in which a subject likes—that is, contemplates with pleasure or satisfaction—some object, this object always having a qualitative status, being the immediate content of the value-experience. Accordingly, the meaning of the word "value," as of all other verbal symbols, is either directly or upon analysis to be found only in first-hand experience; language, being primarily instrumental when properly used in philosophical discourse, can merely describe more or less adequately what seems to be its distinguishing generic traits (if such can be discovered) and indicate the various kinds of existential situations in which, so far as we know, valuing happens to occur.

In a so-called psychological definition of value, such as I have tried to formulate, the problem of the meaning of "affective" is difficult but crucial, and hence can not legitimately be evaded. I am using the term in, as I think, a justifiably wide sense, to cover every species of reaction, including their conscious phases, ordinarily designated by such words as "feeling," "mood," "emotion," or "sentiment." Perfectly clear and unambiguous definitions of these phenomena, what they each are and how they are to be distinguished from one another, can hardly be expected; and, unfortunately, most psychological discussions of them are as vague and confused as their alleged subject-matter, so that while a great deal has been written, not much help can be gained from it for our present purpose. The term "feeling," when it is convenient to use a noun, is perhaps generally the most satisfactory. I shall mean by it the immediate awareness, qualified by positive or negative hedonic

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tone, of a massive, unanalyzed *attitude-response,* liberating a variable amount of nervous energy and involving both cognitive and motor factors—a unified total reaction of the *whole* organism.

The implications of this definition seem to me of considerable importance for a sound and adequate theory of value. Even Mr. Perry, in his admirably thorough and scientifically informed account of "feeling," appears strangely reluctant to admit that what he calls "objective" or "projicient" sensations, are "organic" and "bodily," like "substantive states" of pleasure and displeasure. He says, for example, "that there may be interest, and even immediate sensuous interest, without feeling; that is, without bodily pleasures and pains. . . . We should then say with James that in the more refined forms of aesthetic, moral and intellectual appreciation the total content is provided by extra-organic objects perceived or thought, but that this is accompanied by the interested impulse to perceive or think them. Such states are interested, but not, strictly speaking, pleasurable or affective. They become so only when the bodily sounding-board 'vibrates,' and when to the primary projicient interest there is added the interest in the prolongation of these attendant and secondary organic states."[1]

Disregarding for the time other statements in this quotation about which I am in some doubt, it might even be argued—and very cogently, I think—that not only in the case of esthetic appreciation is the *total* content not provided by "extra-organic objects," but that even the so-called primary and secondary qualities are in part dependent for the unique character they happen to have, in any given instance of their being actually noticed, upon intra-organic events—processes of color vision, motor adjustments going on in our bodies, as well as various environmental stimuli affecting the organism at the time. The content of perception is *always,* I should suppose, the result of a complex interaction between natural events,

[1] *General Theory of Value,* pp. 290–292. In explanation, it may be said that the present article, except in one place where the contrary is explicitly indicated, was written several months before Mr. Perry's recent articles appeared in this JOURNAL. However, it seems to me to do no injustice to his views (unless, indeed, to disagree with certain of them be itself a form of injustice) in their later, and in some instances slightly modified, formulation—that is to say, in so far as they are relevant to the issues here under discussion. It was never my intention, I should like to make clear, to deal adequately with either Mr. Perry's generic *definition* of value or—much less—his general theory with its exhaustive treatment of the entire subject. My purpose has been merely to examine certain statements in his *General Theory of Value,* concerning in the main his conception of esthetic value and beauty, which, if true, would seriously weaken the definition I have proposed. It so happens that these latter notions assume a fundamental importance in my own theory which they do not in Mr. Perry's, which may possibly give rise to the erroneous impression that a much greater portion of his theory is being criticized than is actually the case.

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one of which—the percipient—is so constituted, has such vital interests, that he is aware of qualities that mark, for the consciously reacting mind, a particular juncture in animal life.

In the case of affective or tertiary qualities this seems to me peculiarly obvious. The stimulus-object that provokes attention simultaneously presents some content to the mind and elicits a feeling-attitude toward this content; thus cognitive, motor, and affective tendencies converge in one organically unified act of perception. If, as in the case of most esthetic contemplation, the interest is directed outwards, then the emotion aroused, and, in fact, the total feeling-attitude of the subject, combine to affect the intuited or immediately felt character of this presented content. As the color-blind person sees certain aspects of his visually experienced world as gray, dull, and uninteresting, and all looks yellow to the jaundiced eye (if we may believe Pope—and who should know better?); as the optimist sees the world through "rose-colored glasses," and to the enraptured lover it looks auspicious and beautiful; so every object of sense is affectively toned or colored by the prevailing emotional background and the particular impulses then at work in the body, as these are consciously expressed in the feeling-attitude of the individual as a whole.

Mr. Perry argues, on the contrary, that "the attentive effort at localization, whereas it unites the 'secondary' qualities with the object, dissociates the alleged 'tertiary' qualities, and tends to unite them with the sentient."[2] But when one just enjoys the beauty of anything, or feels that a meeting is "boresome," a place "tiresome," or a situation "hopeful" (to take Mr. Perry's own examples of what he refers to as "alleged" tertiary qualities—really, he thinks, cases of "false affective reference" and similar "in principle" to the "pathetic fallacy"[3]), one does not, in the first place, as the values involved are delighted in or suffered, make any "attentive effort at localization," and if one did, *after the event,* then it is far from being a predetermined conclusion that he would "unite them with the sentient," or that the so-called "clarification of the experience" would bring "us in each case to the identification of the quality with a specific reaction of the subject."[4] Indeed, if my analysis of the situation is not completely false, he would not *identify* the immediately felt quality with any *thing, event,* or *process,* much less a *specific reaction* of the subject.

In fact, as I see it, Mr. Perry's analysis makes a number of unreal distinctions, and this, whether it be interpreted as referring to the felt content of the esthetic experience, or to what may be con-

[2] *Op. cit.,* p. 32.
[3] *Ibid.,* pp. 31, 56.
[4] *Ibid.,* p. 31.

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sidered as happening in our bodies at the time. Is there any evidence whatsoever for the view that when one is, say, listening to music or looking at a picture, one *first* has a "primary projicient interest" in the object, and then, after a longer or shorter period of time (depending, I suppose, upon the reaction time of one's "bodily sounding-board"), that "there is *added* the interest in the prolongation of the *attendant* and *secondary* organic states"? (Italics mine.) One is not even first interested in, for example, the complex of primary and secondary qualities that constitutes the appearance of a picture when seen *not* as beautiful, and then, due to thalamic, visceral, and other organic responses, *become* interested in the prolongation of these so-called "secondary states"; but, on the contrary, it is the *total* complex organic reaction, happening so nearly all at once that, as we say, beauty just strikes us, that is the necessary condition of all true appreciation. Until the "induced" or "coexistent" pleasures [5] are *felt as the quality of the picture*, there is no genuine esthetic experience, but only emotional excitement that is irrelevant to the picture as a work of art. The picture, on Mr. Perry's theory, becomes a mere instrument for "arousing an interested impulse to perceive" [6] or for stirring up "substantive feelings" (or perhaps both at successive intervals?), the latter of which we then turn our attention to, it would appear, in order to appreciate the specific beauty that is the value of the picture. Either this is what is meant, which seems incredible, or the interest in prolonging these "secondary" states is unconscious; so that while we foolishly imagine we are appreciating the picture, we are, in point of fact, only enjoying our own "organic states." This, to be sure, is subjectivism in esthetics with a vengeance. Mr. Perry starts out to purify the esthetic experience of all "organic" and "bodily" content, to elevate it to the refined realm of the intellectual and "subtle emotions," only, in the end, hopelessly to degrade it by asserting in effect, that when the experience *is* pleasurable, it is *really* such "organic states" that constitute or make us want to go on contemplating beauty.

This kind of analysis, moreover, seems not only to deny the commonplace, among artists and estheticians, of the felt unity of works of art, the integrated wholeness of the esthetic experience, but also to involve a highly questionable psychological doctrine.[7] What-

[5] *Ibid.*, p. 286.

[6] To consider more explicitly this alternative, it seems to me not to indicate the differentia of *any* object's beauty, unless one should add the further qualification—making it perhaps a legitimate step towards a behavioristic type of definition—"simply for the sake of perceiving."

[7] Cf. H. Piéron: "Unlike the reflex, a partial response of limited duration with a well-defined mechanism, the affective response involves a comparatively

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ever analysis, after the event, may seem to reveal, when beauty is felt, realized, given in intuition, the entire mind is selflessly absorbed in a sensuous vision intrinsically delightful to contemplate. So that in insisting upon the qualitative nature and status of beauty, I do not mean that the experience consists of a mosaic of discrete qualities; on the contrary, there emerges into the foreground or the focus of attention, depending upon many factors, but particularly upon the more or less specific interest dominating the organism at the time, a determinate whole-aspect of the sensory field. The synthetic glance of immediate apprehension selects and frames, as it were, its own data, and thus presents to the contemplating mind an obvious esthetic unity.

Perhaps we are now in a better position to examine Mr. Perry's criticism of the "objectivity" of good, namely, that "one who upholds this view of good must be prepared to point to a distinct *quale* which appears in that region which our value terms roughly indicate, and which is different from the object's shape and size, from the interrelations of its parts, from its relations to other objects, or to a subject; and from all other factors which belong to the same context, but are designated by words other than 'good,'" and that he, "for one, finds no such residuum."[8] But before trying to uphold such a view, it will be expedient to determine unambiguously the meaning both of "objectivity" and of "good." If "good," for example, means moral good, then certainly I am not prepared to point to any "distinct *quale*"; for moral good, when not just a pious word, is a clear case of so-called means value; that is, I should say that a given act is "good," when it leads to, is one of the causal conditions of, some experience that, either for oneself, or for others, can be felt as immediately satisfactory. Of course social approval and disapproval, together with one's own past experience, con-

persistent total activity" (*Thought and the Brain*, 1927, p. 242). Also, E. Bleuler: "An intellectual process, a perception . . . and a thought, are all in a certain respect partial functions. We could imagine that only a part of the psychic organism participates in these processes. In contradistinction to this, the affective processes signify an *assumed attitude of the whole person*" (*Textbook of Psychiatry*, 1924, p. 36). (Italics his.) I have quoted these particular writers because they are, respectively, leaders in France and Germany in physiological and abnormal psychology, and since neither of them is a member of the *Gestalt* school, their views can hardly be discounted on the ground that they are biased in favor of that general position.

Mr. Perry himself says, in one place, that "Responses directed outward to the environment and forward in time commonly engage the whole organism" (p. 287). But his discussion of "objective feelings"—which, as a class, would appear to contain many unequivocal instances of experiences involving, on his own analysis, just such outwardly directed interests—seems to me hardly consistent with this earlier statement.

[8] *Ibid.*, p. 30.

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tribute quite naturally to effect a psychological distribution of value from end to means, so that the act may come to be directly felt as good or bad in itself. In such a case, however, its value would not differ fundamentally from other immediate values, the qualification "moral" indicating merely—and even this not unequivocally, as a usual thing—the kind of situation in which the value occurs.

Or if "good" means an "intrinsic" or "absolute" quality, that the object is supposed to possess in its own right, under any (or no) circumstances, and regardless of the likes and dislikes of men, or whether, indeed, there *are* any men—then, if "good" is supposed to mean anything as meaningless as this, I am again not prepared to point to any "distinct *quale*" which appears in that region roughly indicated by my value terms; nor, moreover, do I believe that any one else is. Indeed, that which is intrinsic, absolute, and unconditioned, would appear to be exactly what no mortal *could* point to, since the very act of pointing itself implies a point of view, a sensuous perspective, relative bodily station, particular and contingent circumstances, the belief that the "object" pointed to occupies a common space, and no doubt considerably more.[9] However, it is not alone tertiary qualities, but, as I have argued, all sensory qualities, and this no matter how confidently they are attributed to existential objects or events, that are relative to the accidental, concrete stimulus-response situations in which they are invariably experienced.

But there is a peculiarity about "tertiary qualities that Mr. Perry, despite his linking the words together in a section heading, seems to have overlooked—or at least under-emphasized: I mean the nature of their intimate relation to "feeling," which I think is sufficiently important to justify careful scrutiny. Feelings, more than any other mode of the affective life, as is well known, tend to vanish or dissolve away under critical analysis and to be used up, so to speak, in active overt behavior; thus, although one feeling is always succeeded in time by another, the distinguishing quality (or *quale*, if one likes) of the first feeling, is of course lost—perhaps, as the sentimental say, never to be experienced again. While an exact duplication of two feelings is apparently not, in the nature of things, impossible, the conditions of a particular feeling are so delicate, complex, and, in a sense, fluid, that such a duplication is not, in point of fact, at all likely to occur. A number of considerations very important, as it seems to me, for an adequate theory of value, follow from these simple empirical observations.

Since the quality, simple or complex, that is the object of atten-

[9] Needless to say, Mr. Perry himself holds to neither of the alternative interpretations of the meaning of "good" which I am here criticizing, and in fact would, I think, agree in the main with my contentions.

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tion, the content of consciousness, in the value-experience, is dependent in part for its defining character upon the affective processes going on in the sentient *at the time,* it is of course impossible that any subsequent analytical or scientific investigation could discover *that* "distinct *quale.*"[9] Furthermore, since the organic quality of an experience (and hence *its* value) obviously can only be felt by the person having it, any judgments that an observer could make on inferential grounds—especially in the case of tertiary or affective qualities involving, it may be, the highly individual or even "abnormal" feelings of the percipient—would have a probable error the magnitude of which might well discourage the most sanguine behaviorist, with a passion for statistics, quantitative data, and a premature desire to ape the "exact" sciences. Clearly, such an observer could only record the motions—unauthentic tidings of invisible things!—that tone went through, and how long it took him to go through them, adding, perhaps, a rough description of facial expression, bodily attitude or gestures.[10]

As it is difficult for one person to know how another feels about a given object or form of activity, that is, how much he really values it, so two or more people who are contemplating the "same" object—for practical everyday purposes of identification—may, and often do, disagree as to its esthetic value or beauty. This simple fact is frequently supposed to constitute a problem for naturalistic value-theory (and it would certainly be an anomaly on any other kind); hence it may be well to suggest at this point what seems to me to be its solution.

Since the existential conditions that support the felt quality of beauty involve in addition to native sensitivity, emotional responsiveness, and in some cases long training, a certain esthetic detachment and at least momentary aloofness from practical interests, they are consequently more variable and less common, lack the stability and uniformity, of those conditions sufficient for the unemotional perception of the primary and secondary qualities. Our likes and dislikes depend so intimately upon our special interests and the particular organic conditions within our bodies, that—far from constituting a "problem"—it is what one would naturally expect that those tertiary or affective qualities that, in turn, are dependent in part upon

[10] "The ground of a man's joy is often hard to hit. . . . It has so little bond with externals . . . that it may even touch them not, and the man's true life, for which he consents to live, lie altogether in the field of fancy. . . . In such a case the poetry runs underground. The observer (poor soul, with his documents!) is all abroad. For to look at the man is but to court deception. . . . To miss the joy is to miss all." (From Stevenson's "The Lantern-bearers," quoted with enthusiastic approval by William James in his essay "On a Certain Blindness in Human Beings.")

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them, should vary more or less from person to person, and even for the "same" person at different times.

But such relativity does not prove that the affective quality, when felt as the "esthetic surface"[11] of an object, is "really" identical with a specific response in the percipient, nor, so far as I can see, impugn in any way the "objectivity" of such qualities. What does it *mean* to say that that which is intuited as the precise "look" of an object, is actually constituted by "false affective reference," and by a clear mind properly to be identified with a reaction in the percipient's body, although he is directly aware of the quality of the object and may even forget for the time that he has a body—as may often happen but particularly in an esthetic experience? Any quality is objective in the sense that it is the *object,* the particular terminus, of a given perceptual process, the sensory content rested in, if only for an instant; and this seems to me the only sense of "objectivity," if one is speaking of qualities, that in the end really makes sense, or has any adequate empirical warrant. The fact that more people will agree as to the color of a cherry than as to its taste or esthetic quality for the eye, does not indicate that the former is objective and public, and the latter subjective and private; but simply that those material conditions biologically adequate to evoke and sustain one conventionally distinguished order of appearances are less extensive and more variable than the sufficient conditions for another order—the so-called primary and secondary qualities.

The same actress, for example, who appears lovely and divine on the stage may look indifferent or coarse and very much of this world across a dinner table—not to mention breakfast. In any case, an argument over her *beauty* could not be settled by recourse to anthropometric measurements of her features. Nor settled categorically at all. The best critics might find her ravishing beyond compare, under one set of physical conditions, and the direct opposite under a different set of conditions. Distance, lighting, make-up, costume, the taste of the observer, and so on and on—all these and other things would enter into and affect, however unconsciously, a sincere esthetic judgment passed on her appearance. But such judgments would indicate as their *meanings* determinate sensuous contents intuited as lying on the very surface of the logical substantive—that is, the actress.

It would in general, I think, conduce to clarity in this matter if epistemologists would give up the cant antithesis of "subjective" and "objective," with its misleading emphasis upon separation instead of interaction. Such a dichotomy only tends to per-

[11] Cf. D. W. Prall's *Aesthetic Judgment,* esp. pp. 15–23.

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petuate in ethics and theory of value the false and vicious alternative between value judgments that are supposed either miraculously to exercise a universal and coercive validity upon all minds or to be merely sounds in the air arising from the accidental operations of some animal's larynx, expressing no definite intent and without genuine human significance.

Perhaps it is now clear (if it has not always been) why Mr. Perry's attempts to find a residual "good," "different from the object's shape and size, from the interrelation of its parts, from its relation to other objects," and so on, were necessarily doomed to failure, like the not unsimilar attempts of nineteenth-century materialists to find man's mind in the interstices of his brain cells, and their hasty *non sequitur*, upon not discovering, I suppose, a "mental substance," that, therefore, man had no mind. If they had even begun to understand—what of course no one does fully—the characteristic mode of being that distinguishes the complex organization and marvelous sensitivity in certain biological processes called "mind," they might have been saved their trouble and subsequent fallacious conclusion. The anatomist who dissects a human body does not find there the life that once animated it, nor the botanist who examines a leaf under the microscope its fresh green color.

Nowhere is this characteristic of all perception more outstanding than in the case of esthetic values. Beauty, for example, is not a "residuum" discoverable by painstaking analysis in the recesses of an object's constitutive "substance," its shape, size, or the interrelation of its parts; it is the first blush of appearance, and, as Mr. Prall says of art, it "moves us instantaneously or not at all."[12] Who would look in the separate tonal elements out of which the artist composes the wonderfully complex and intricately ordered musical structure, having a definite rhythmical pattern and sensuous, formal, and expressive unity, for the *specific* beauty of a symphony? Obviously the simple beauty of the esthetic elements, as such, as well as the numerically expressible relations that subsist between them, are a *condition* of the more complex and sophisticated beauty of the symphony as a whole. But, nevertheless, we should not think much of the artistic acumen of a critic, to paraphrase a favorite academic *cliché*, who could not hear the symphony for the notes. Beauty, if not Goodness and Truth, resides in the whole: not, I need hardly say, in the "Whole of Reality," but in the esthetic unity of any appearance, enjoyed simply for its own sake, or in the achieved synthetic unity of a successful work of art.

Mr. Perry now seems to admit this point, at least in part. For

[12] This JOURNAL, XXI (1924), p. 124. I do not mean to say that it is the "beauty" which moves us; it, on the contrary, is only the sign that we have been moved.

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example, in his recent article, "Value as Simply Value," he says: "Wholes may have characters which dwell *in* the whole, can be seized only when the whole is apprehended 'at once,' and will be lost in an itemized inventory of the analytical components" (italics his).[13] But he adds that *if* value is such a whole-aspect (which it is not, of course, according to his theory), it is analyzable as are other wholes, "into elements which in their severalty are not the whole except in the sense that they compose it." Although this statement is, in my opinion, somewhat closer to the facts, it is still, I think, seriously misleading, being an instance of what James called the "fatal 'psychologists fallacy.'"[14] For when, through cognitive analysis, the so-called "elements" are discovered, they can not, in any clear sense, be said to have "composed" the unanalyzed whole or pre-analytical datum,[15] which was the starting point and subject-matter of the investigation. Such residual data neither compose nor constitute the esthetic value of an object, but are merely signs, *in a different context*, of a particular dynamic event conditioning, materially, the value formerly given in experience—or perhaps subsequently, if there is a return to the contemplative attitude of non-discursive intuition. As for Mr. Perry's further complaint that he does not know where "to look in order to find"[16] such a value-quality, I should like to suggest that one does not "look" anywhere, unless it be simply to fixate on a certain visual stimulus, since values are *felt*, not *seen*.

The critical reader will no doubt have noticed that in the discussion so far I have selected as examples of value only such as would ordinarily be called "esthetic." This may well seem a suspicious circumstance, and throw some doubt upon the adequacy of my formulation as a *generic* definition of value. As Mr. Perry remarks, "Indeed, the view that good is a simple quality observably present in objects[17] would scarcely be held at all were its ex-

[13] "Value as Simply Value," this JOURNAL, XXVIII (1931), pp. 523–524.

[14] *Principles of Psychology*, Vol. I, p. 488.

[15] J. Loewenberg, "Pre-Analytical and Post-Analytical Data," this JOURNAL, XXIV (1927), pp. 5–14.

[16] *Op. cit.*, p. 524.

[17] Of course I am arguing for neither the "simplicity" of good nor its presence "in" objects. But although much of what Mr. Perry says here and elsewhere seems to me just criticism against a theory of the "objectivity" of good such as that advanced by G. E. Moore and John Laird, I trust the previous analysis has shown that it does not apply to a relativistic account of experienced qualities. The passage here quoted is taken from the section on "Feeling and 'Tertiary' Qualities," in which Mr. Perry is considering the views of Moore, Laird, and Santayana, concerning the nature and status of value. While not agreeing, as I have indicated, with Mr. Perry on certain points (the ones, of course, which I have selected for comment, most adverse criticism being in this sense invidious and misleading), it has certainly not

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ponents not exclusively preoccupied with the contemplative and esthetic values. Here there is at least a certain *seeming* evidence in its favor. Its inadequacy is too palpable when one passes on to other regions. Are there no values implied in effort, struggle and aspiration? Is there no difference between obligatoriness and charm, or does one propose to deny value of the former while affirming it of the latter? Does anyone suppose that economic value can be explained in terms of delight and enticement, with no regard for appetites and needs?'' [18]

These questions are obviously rhetorical and perhaps do not call for any answer—at least not such as I intend to give. As to the first, I should of course agree that values are *implied* in ''effort, struggle, and aspiration,'' if one *likes* that sort of thing, *or* if one's efforts are not in vain, one's struggles fruitless, and one's aspirations never realized. In other words, such forward-looking activities are ''good'' (instrumentally) when they lead to consequences, end-reactions, or consummatory experiences, that afford immediate pleasure and satisfaction—that is, are good intrinsically. That earnest and energetic Christians (as they are wont to call themselves) may find intrinsic satisfaction in their efforts and struggles to reform the immoral, save the heathen, or make the world safe for democracy by killing off the masses, is not only a possibility but a fact—and a psychiatric problem.

But, as we have seen, any kind of human activity that is directed towards some end that the agent feels is both worth while and attainable, may of course become intrinsically satisfactory to contemplate, in which case it would have, assuming that it was successful, both ''means'' and ends value; and I agree with Mr. Shand that ''it is the great art of life so to combine them,'' [19]—indeed, I should say, the primary function of true morality. For it seems to me that the distinction between means and ends is not merely theoretical, but an inescapable characteristic of human life as we are forced to live it; and although in concrete experience there frequently is in some sense a ''fusion'' between ''means'' and ends values, this fact surely need not lead us into *con*fusion in our value theory. Furthermore (and this is the point I should like to emphasize), *when* instrumental objects or means activities are liked

been my intention to try to defend the views of either Moore or Laird—and as for Santayana's, they have never seemed to me to require any defense. But the text of my paper makes clear, I think, what it is specifically that I am objecting to, even though Mr. Perry has never, so far as I know, criticized any theory to which I can fully subscribe.

[18] *Op. cit.*, pp. 33–34 (italics his).

[19] *The Foundations of Character*, p. 354.

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directly, their value is quite as immediate or intrinsic as in any case of esthetic contemplation, conventionally so labelled.[20]

It is in this, as I think, very important sense—often overlooked and, for all its obviousness, commonly denied—that all value is esthetic. But as long as discriminating taste is frequently mistaken for decadence, and true refinement is thought to be a sign of weakness or even effeminacy; and as long as the word "esthetic" suggests museums and dead masterpieces and concerts that one ought to enjoy but can not, vague humanistic aspirations after ultimate standards or the esoteric and precious discourse of wan esthetes:—as long as the term has in the minds of many good people such a connotation, I confess to a shade of doubt as to whether it does not merely increase popular confusion and unnecessarily arouse stupid and ignorant prejudice. If the term "esthetic" suggested what is intended, namely, that all *actual* human values are *felt* pleasures and satisfactions—vital, sensuous, and immediate—as opposed to purely instrumental techniques (even though these may be existentially integral to the ends they subserve, as Mr. Dewey has insisted), dogmatic absolutes or empty imperatives, then its use would certainly be justified in acting as an effective counterblast to merely verbal ethics, puritanical morality, and other eminently respectable forms of intellectual tyranny.

To return to Mr. Perry's questions, I also suppose that there is a difference between "obligatoriness and charm"—the main difference being that the former is a negative while the latter is a positive value. I know there are reputed to be virtuous souls who experience a distinctively human joy in discharging their "moral obligations," but *if* they do, then such experiences are so far intrinsically good; and if they do not, the answer to the question whether the act has positive value depends upon its consequences in the lives of the agent and the recipient and any other persons affected by it.

Similarly, I do not think that anyone seriously supposes that *all* "economic value can be explained in terms of delight and enticement, with no regard for appetites and needs," but certainly *some* economic values appear to have a very intimate relation to

[20] To deal adequately with this problem of means and ends would require a separate paper. I can merely say here that the distinction between means and ends is not, as it seems to me, a distinction in *values* at all. The unequivocal use of the term "means" can only indicate that one believes there is an existential connection between the instrument or activity in question and some end activity that may be found directly satisfying. In other words, I think that, strictly speaking, there are *no* means values, although there *are* means—that is, sufficient *conditions* of certain values. If these means should become interesting on their own account, as frequently happens, then, *ipso facto*, they become also intrinsically valuable, and there is no confusion.

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"delight and enticement." I need mention only the so-called exchange value of works of art and the more or less remunerative activities of an ancient, if not, to some minds, altogether honorable profession. If it be said that this latter involves "appetites and needs," then the fault would appear to lie in the original antithesis.

In the light (I hope) of the previous discussion, let us examine the definition of value suggested at the outset, with a view to determining more exactly its meaning and adequacy.

In saying that value is logically a relational adjective, I wished to emphasize two things. First, that the content of the value-experience is the adjectival or qualitative aspect of some natural event, occurring in our bodies, in the external world, or, as I have insisted, marking for the conscious mind an active interaction between the whole complex of events that is the basis of every experience. This content may be a datum of so-called veridical perception, an unanalyzed mass of organic sensations vaguely referred to internal bodily regions, or a cross section of the drift of feelings and imagery that make up the most of our waking life. Secondly, value is a *relational* adjective because the felt quality of the value-experience is what it is by virtue of the total situation—"subject," "object," and the rest—in which it must occur to be the content of a human mind at all.[21] But while value may be more obviously relational in this sense than are other qualities, it seems to me the most reasonable assumption, as I have already indicated, to suppose that *all* qualities are relative to and dependent upon, the existential conditions of their occurrence.

It may be asked on what grounds I am led to identify the value with the "given" affective quality instead of with a response (interested or otherwise) of the subject, or the relation subsisting between the stimulus-object and the subject. I shall now try to answer this question more specifically.

If one is considering the organic basis or source of value (really, I think, a scientific problem), then the value fundamental is the organized system of physiological responses, the conscious expressions of which I have called feeling-attitude and hedonic tone. Although feeling-attitude and hedonic tone are in various ways intimately related, I think it is important for the purpose of analysis to distinguish between them. The former is our immediate sense or feeling of an attitude-response, a reaction tendency towards or away from some object or situation; the latter is the pleasure or displeasure

[21] While the above use of "relational" differs from that, for example, in Mr. Johnson's *Logic*, it seems to me the most natural and appropriate term to suggest the meaning that I intend. I notice that Mr. W. D. Ross, in his recent book, *The Right and the Good*, employs the word in a very similar sense, although, needless to say, he does not apply it to his own conception of value.

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that is the normal accompaniment of such a response. Differently stated, the feeling-attitude is our consciousness of a dynamic impulse to behave one way rather than another; its organic roots are deep in hereditary behavior tendencies, constantly modified through interaction with the material and social environment. On the other hand, the hedonic tone (whether one conceives its physiological basis as central or peripheral, or, as I should, both), while not passive in the sense of not depending upon internal bodily activities, is more the warmth and coloring, the pleasure or displeasure that pervades the whole experience.

Now it is possible, I think, if this distinction be granted, to feel pleasant sensations, while within the temporal stretch of what would ordinarily be called the same experience, the active attitude of the organism is one of rejecting, of wanting to alter, at least in certain respects, the existing situation, of turning away from—either overtly or psychically, if I may so put it—the source of pleasurable stimulation. In other words, the experience of value is frequently complex, and contains, in addition to the discriminated pleasure content, as such, a feeling of underlying directional tendencies, a kind of emotional apperception of their vital import in the life of the experient. This is not to deny—what was explicitly affirmed in our definition—that the pleasure component is one factor in determining the total value of a given experience, although I think that, in the last analysis, this is true only because pleasure is the name for one thing which men like.

So far I have considered the basis for the distinction, trying also to suggest some of their more important relations, between what I have called feeling-attitude and hedonic tone. In my criticism of Mr. Perry's treatment of affective or tertiary qualities, perhaps I have already made sufficiently clear my reasons for assigning value a qualitative status; but there may still be some ambiguity, and I should like if possible to get the matter completely straightened out.

There is one misinterpretation in particular that is likely to occur. In saying that any given or actual value is an immediate affective quality, I do not mean to imply by the use of the word "quality" that it is a clearly marked off determinate aspect of some environmental object, but that, as the qualifying term "affective" is supposed to indicate, it is the *felt* organic quality of the total situation, as this in part determines, and in turn is reflected in, the organized but changing experience meaningfully relating a conscious individual to this particular situation. Value thus adds, so to speak, a new dimension to experience; it is deepened, enriched, made more humanly significant. But the value, being essentially a feeling directed on some object of sense or imagination, may frequently seem

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a diaphanous nonentity to analytical thinkers predominantly visual-minded; indeed, it is this fact, I suppose, that chiefly misleads some philosophers into denying that value is qualitative. Probably it does sometimes happen that in thinking or self-expression or in attending to sensory cues that guide existential behavior, due to the absorption in the activity, no feeling-attitude is experienced. If this is so, and—what is unlikely—the experience in question is absolutely neutral in respect of both liking and pleasure, then I should say that it was, as such, valueless. For it is the immediate feeling of the experience as a whole that determines its value, a feeling that is either qualitative, in the sense I have tried to make out, or else not felt at all, and hence neither a feeling nor a value. In other words, if value is consciously experienced, it must on the basis of the foregoing epistemological analysis, be qualitative in its status and nature.[22]

However, in holding to the view that value is qualitative, I trust it is clear that I am not imputing to it an unintelligible "objectivity," but am only saying that value is a felt character of experience, a character that is a function of hedonic tone and the feeling-attitude of valuing (both of which of course involve the organism's natural constitution, past experience, prevailing bodily conditions, and so on), as well as the whole environmental situation. These are the conditions, but the *value* is the immediate content of the experience, as directly enjoyed or found satisfactory to contemplate; and although this felt organic quality occurs only in conjunction with liking and pleasure, it should not, it seems to me, be identified with either of them, or with any specific reaction in the subject or the relation between the subject and the liked object, since neither the reaction nor the relation is what is given or felt as the value. If I may take the liberty of paraphrasing Proposition 49, Book 2, of Spinoza's *Ethics*, it would perhaps more accurately express my view.

PROP.—*In the mind there is no affirmation or denial of value excepting that which the value, in so far as it is a value, involves.*

Demonst.—In the mind there exists no absolute faculty of valuing or not valuing. Only individual valuations exist, that is to say, this and that affirmation and this and that negation of value. Let us conceive, therefore, any individual valuation, that is, any mode of the motor-affective life which is expressed by the mind when it affirms or denies value of any experienced object. This affirmation

[22] I find, since writing this, that Mr. C. I. Lewis (*Mind and the World-Order*, pp. 402–406) has expressed a view which, I take it, is fundamentally in agreement with the one here argued. Also Mr. D. C. Williams' article, "The Definition of Yellow and of Good," this JOURNAL, XXVII (1930), p. 523, appears on at least one point to furnish welcome support.

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or denial involves the content or object of experience, that is to say, without it the affirmation or denial can not be conceived. For to say that *A* must involve the conception of *B*, is the same as saying that *A* can not be conceived without *B*. Moreover, without the activity or process of valuing, the value can neither be nor be conceived. The one, accordingly, involves the other; that is, they are logically correlative, as well as invariably found occurring together in nature. Therefore, in the mind there is no affirmation or denial of value excepting that which the value, in so far as it is a value, involves. Q. E. D.

This whole problem will be greatly clarified, I think, if we may apply by analogy to the experience of value Mr. Loewenberg's recent trenchant and illuminating analysis of the prepositional nature of truth. In the light of his discussion we may say that value is instituted *by* a liking subject, it is enjoyed *through* intuition, it is experienced *under* relative conditions, and it is *of* some object or thing.[23] To ignore or deny any one of these essential relations, is to commit what Mr. Loewenberg has appropriately termed the "fallacy of suppressed prepositions."[24] One of the advantages of this analysis is that it grows out of, and is, I think, applicable to, *all* experiences of value, thus involving the minimum of presuppositions and the maximum of generality.[25]

The experience of value, always occurring in such relative situations, is defined by the determinate way in which we *feel* about something, and hence expresses a more or less characteristic psychological orientation of the individual. If the value is negative, that is, if we do not like it, there is an immediate impulse to change or get away from the existing situation, which may take the form of actual flight, a compensatory response in the imagination, or practical action directed towards modifying the situation, as in healthy-minded, extraverted pragmatists. But if the experience is good, we psychically stop and enjoy, so to speak, the conscious fruits of our activity: a pleasure felt, a desire satisfied, a purpose fulfilled—or in the active process of fulfillment.

In this end-situation directly felt as good, the "set" or attitude of the organism is neither to understand nor to alter the existing situation, but only to enjoy it. Nor do I think that this statement implies any palpably false doctrine of static or atomic "mental

[23] "The Prepositional Nature of Truth," *University of California Publications in Philosophy*, Vol. XI, p. 5. I have thought it desirable to change the last two prepositions (which were "in" and "about"), since our present problem is not the nature of "truth" but value.

[24] *Ibid.*, p. 13.

[25] I am also indebted to Mr. Loewenberg for this concise formulation of one of the important *desiderata* of a philosophical theory.

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states." Such an end-situation is established when, in the midst of any expert bodily activity—as, for example, a skillfully played game of tennis or a fast and astutely handled argument—we feel, unecessarily with pleasure, a sense of our own power, of passing, as Spinoza put it, from a less to a greater perfection.

Values, then, have their source in animal reaction and vital preference, obscure physiological activities for the most part unconscious and perhaps forever beyond our understanding; but they are realized and enjoyed in moments of immediate pleasure or conscious satisfaction. When the will is transmuted into vision, suffused with feeling, and clarified by thought, then it is I suppose that the finest values occur. And it is in such moments of escape from the strain and boredom, the dead vulgarity of ordinary existence, that we achieve some intuition of the excited significance that life is capable of yielding, its inner meaning and spiritual joy.

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BOOK REVIEWS

Science and First Principles. F. S. C. NORTHROP. New York: The Macmillan Company. 1931. Pp. xii + 299.

Professor Northrop has written a truly amazing book. He has attempted no less than the elaboration and demonstration of a new theory concerning the first principles of science, and the construction, in its main features, in accordance with the system of principles thus obtained, of a comprehensive metaphysical theory. There is no questioning the enthusiasm with which he has undertaken this task, nor the vigor with which he has prosecuted it; nor again the confidence that he manifestly feels as to the methods employed and the results attained. Whether many of his readers will be able to share this confidence, is, I think, more doubtful.

The book consists of six chapters. Of these the first two introduce, and attempt to demonstrate by direct argument, Professor Northrop's new system of scientific first principles, of which the central feature—the "macroscopic atomic theory"—is as follows: "this universe must be constituted not only of the moving microscopic atoms of the traditional atomic theory, but also of one large physical macroscopic atom, spherical in shape and hollow in its interior except for its inner field, which surrounds and congests them" (p. 120). The remaining chapters serve to exhibit this new theory as *clavis universalis.*

The prevailing method of these latter chapters is extremely simple. First, "It may be noted at the very outset that a funda-

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mental principle of polarity or duality appears in the metaphysics of the kinetic atomic physical theory of nature with the introduction of the macroscopic atom. This atom provides the principle of rest, the microscopic particles the principle of motion; it introduces the principle of unity, they, the principle of plurality. Likewise its shape entails the principle of necessary and fixed form, their motion the principle of variable and contingent relatedness'' (p. 140). So much premissed, the rest is easy. Professor Northrop simply runs over the field of contemporary science and metaphysics, and wherever he finds an aspect of disorder, disorganization, multiplicity, plurality, contingency, change, variability, discontinuity, or the like, concludes forthwith that it is due to the microscopic atoms; while wherever he finds an aspect of order, organization, unity, necessity, permanence, uniformity, continuity, or the like, he concludes, without more ado, that it is due to the ''macroscopic atom.''

Thus the microscopic atoms explain ''the indeterminism which Heisenberg has suggested'' (p. 143); the ''jumps of electrons,'' ''unpredictable except on statistical grounds,'' in the Bohr atom (p. 145); releases of potential energy (p. 147); the fact that waves behave as if they were particles (p. 147); the ''breaking-down process'' involved in the second law of thermodynamics (p. 164), and ''energy due to motion'' in general (p. 165); the physico-chemical and mechanical aspects of living things (Chapter IV); the ''chance variations'' of evolutionary theory (p. 209); the hereditary ''raw materials'' of human nature (p. 211); the irrational factors of our mental life (pp. 236 sqq.); the aspect of discontinuity and numerical difference in things that gives rise to arithmetic (pp. 241–242); etc.

The ''macroscopic atom,'' on the other hand, through its action of ''congesting'' the microscopic atoms in its hollow interior, explains the fact that despite Heisenberg's ''indeterminism'' there is a large element of ''form and order in nature and its parts'' (p. 143); the ''stable states'' of the Bohr atom (p. 145); the finite and quantum-like character of energy releases (p. 147); the fact that ''the emission and absorption of light is a symmetrical process'' (p. 148); the ''building-up process'' which provides organised systems to be disorganised and through increase of entropy (pp. 164–165); and ''energy of organization and position'' in general (p. 165); the fact that living things ''exhibit an organization which can not be defined completely in terms of their constituent microscopic physico-chemical materials'' (p. 166 and Chapter IV); the fact that ''organic nature exhibits a teleological character'' (p. 203); the organization of new forms in evolution (p. 225); natural selection (pp. 209, 228); the specific form and organization of the human individual (pp. 218, 222); the rational aspects of our mental life (pp.

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236 sqq., 276–277); the aspect of continuity in things that gives rise to geometry (pp. 241–242); etc.

If we ask how, in detail, the "macroscopic atom" contrives to produce these various interesting effects, we are only told, rather airily, that it does it by "surrounding and congesting" the microscopic particles, and that "it has the physical forces at its disposal, which are necessary to change the direction of motion of the moving microscopic particles" (p. 217). If we ask on what grounds these various special effects are to be assigned to the action of the "macroscopic atom," we are offered, so far as I can see, nothing substantial at all. Professor Northrop appears simply to assume, without a shred of argument, that his "macroscopic atom," once its existence has been established, *must* be regarded as the sole source of whatever order, organization, unity, necessity, etc., there may turn out to be in this universe of ours.

And this leads us to inquire how, as a matter of fact, its existence *has* been established. I think all that is essential in Professor Northrop's argument can be condensed as follows. In his first chapter he argues that the "physical theory of nature"—essentially the "kinetic atomic theory," first elaborated by the Greeks—though enormously more successful than any of its competitors, and progressively confirmed in the development of modern science, suffers from one fatal defect. It "is untenable unless there is a referent for atomicity and motion in something other than the microscopic particles" (p. 49). This referent, however, can not be identified with absolute space—a conclusion already sufficiently demonstrated in antiquity by Zeno, and reinformed, in modern times, by the theory of relativity. It must therefore be some body other than the microscopic particles.

What is to be thought of this argument? The rejection of absolute space as a referent we need not pause to discuss,[1] since it will clearly get us nowhere unless we concede that there must be *some* referent for atomicity and motion in addition to the microscopic particles. Whether so much must be conceded or not I will not venture to say. But the present argument does not seem to me to prove that it must be.

The reasoning is due, Professor Northrop says, to Parmenides. First, motion is impossible unless there is something in addition to the microscopic atoms. For "motion requires that a thing moves from where it is to where it is not. If nature is nothing but the stuff which moves, then there is no "where-it-is-not," and hence motion is impossible" (p. 8).

[1] Though the sufficiency of Zeno's argument will not by all minds be readily conceded. Its validity has been questioned by very competent writers, though Professor Northrop chooses to take no notice of the fact.

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It would be most natural to understand "where-it-is-not," in this context, to refer to a locus in space. It it is to be so taken, then the argument proves, if it proves anything, that in order that motion should occur there is need, in addition to the atoms, of space. But this can not be what Professor Northrop supposes it to prove, since he does not accept this conclusion. If, however, "where-it-is-not" is taken to refer instead to some real physical entity in addition to the microscopic atoms, then the argument becomes not only, what Professor Northrop concedes it to be, "almost humorous" (p. 8), but positively ridiculous. It is as though one were to argue, "An afternoon of solitude requires that madame should be visited by nobody; therefore, unless there be some actual person in the world in addition to madame, at least, namely, a certain 'nobody' to visit her, madame can not have her afternoon alone." If, finally, by "where-it-is-not" is to be understood not a locus in space, but a locus defined by relation to some "reference body" (Cf. p. 109), Professor Northrop has as yet advanced nothing to show that this must be something in addition to the microscopic atoms themselves.

This he attempts to do by arguing that "atomicity" itself, i.e., any multiplicity of atoms, is impossible, unless there is something in addition to the microscopic atoms. "Moreover, there can not be many particles if nothing but the stuff of the moving particles is supposed to exist. For manyness requires something to enable one to distinguish between one atom of stuff and another, and this is impossible if nothing but the stuff of the atoms exists. . . . In a kinetic atomic theory the category of stuff gives only the respect in which the atoms are identical or one; it cannot prescribe the respect in which one atom is other than another. Stated positively this means that one atom can be distinguished from another only in terms of its unique relation to some common referent. If nothing but the stuff of the microscopic particles exists there is no such referent. Hence atomism is impossible" (pp. 8–9).

This argument seems scarcely adequate. Let us admit at once that the "category of stuff" will not of itself suffice "to prescribe the respect in which one atom is other than another." But what was to be proved is that for this nothing short of "a common referent other than those atoms" (p. 9), will suffice. And Professor Northrop in fact offers no argument to prove this. He urges that the "stuff" of the atoms is not enough, and then simply *jumps* to the desired conclusion.

The argument of the first chapter thus gets us, I think, nowhere. We have as yet no reason to suppose that either "atomicity" or motion requires a common referent in addition to the microscopic atoms. In the second chapter, however, Professor Northrop urges

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(p. 109) that even though relative motion might *per impossibile* occur in the absence of such reference body, the theory of relativity at any rate requires us to assume its existence. For this theory "necessitates the existence of absolute motion" (p. 108). Since I am not qualified to speak as to the requirements of relativity I must leave to the determination of trained relativists the question whether it be indeed the case that the theory "involves absolute motion" and whether, if so, this requires us to assume some reference body additional to the microscopic atoms. For the present purpose it will be sufficient to remark that even if we concede the entire validity of this argument, and indeed of those previously considered as well, we are not yet within hailing distance of Professor Northrop's "macroscopic atom," for we have as yet heard no reason for identifying the required reference body with such an atom.

So far as I can discover, the only direct argument that Professor Northrop advances to this point runs as follows. Astronomical measurements such as we actually succeed in carrying out presuppose "that at least an approximate metrical uniformity and constancy extends over macroscopic regions of the space of any frame used for astronomical measurements" (p. 113). But "since the atoms of the universe of the relativity theory are kinetic in character the relations between them are continuously changing. Hence metrical variability should be the general rule. Metrical uniformity should be the microscopic exception, holding only for infinitely short increments of atomic motion. Hence if the traditional theory of matter is retained and the metric of space is conditioned by matter, it follows that the macroscopic materical uniformity and constancy necessary for measuring can not exist" (pp. 114–115). "The conclusion is inescapable [p. 118] . . . something other than the traditional microscopic atomic entities must exist in this universe. In fact, we have but to note what is required to impose a constant macroscopic metrical uniformity upon the local variable relatedness of the microscopic atoms to discover what this additional factor is" (p. 119)—viz., the "macroscopic atom" of our theory.

To this argument I reply as follows. Professor Northrop holds, as I understand the matter, that the microscopic atoms move, not simply, as traditional theories have been accustomed to maintain, with a "local variable relatedness," but also in such wise as "to compensate their variable relatedness so that a constant uniformity extending over great distances in nature is preserved" (p. 119). He then goes on to *assume* that his "compensation" in the atomic motions could not take place unless there existed in the universe something other than the microscopic atoms—something to act upon them so as to "change the direction of their motion" (to change

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it, I gather, from what it was supposed to be on the inadequate traditional theory to what Professor Northrop holds it to be in fact—though what is here involved seems to be rather a change in theory than a change in nature). In support of this important, and to my mind at least very dubious, assumption he offers no argument whatever.

But even supposing the necessity of an "additional factor" to be admitted, does Professor Northrop give us any good reason for identifying it with his "macroscopic atom"? I can not see that he does. He presents us with three considerations (pp. 119–120). First, he argues that the "additional factor" must, in any case, be something physical. Let us concede so much. "Second, this physical entity must congest and surround all the microscopic atoms of the whole of nature. Otherwise, they would be merely crowded out into some other referent for their motion, and macroscopic metrical variability would be the rule." The force of this reasoning I find by no means obvious. In the first place, why should it be assumed that the "additional factor" must be a *single* physical entity? Why might not several physical entities coöperate to produce the requisite "compensation"? But granting it to be a single body, why must this body contain within itself all the microscopic atoms? Suppose it didn't. Professor Northrop argues that in that case (1) it could not serve as a referent for the motions of all the atoms, and (2) "macroscopic metrical variability would be the rule." To (1) we may reply (*a*) why not? Can a body function as a referent only for motions that take place within it? And (*b*) what if it couldn't? We are supposed to be arguing as to what is required to produce "compensation" in the motions of the microscopic atoms. It is not obvious that a body must be a "referent" for all their motions in order to produce such "compensation." To (2) we may reply, why so? (*a*) Because a body that is not a referent for all motions can not produce the necessary "compensation"? We have found no reason to believe this, nor indeed even that a body that does not contain all the microscopic atoms can not function as referent for all their motions. Or (*b*) because a body can not act to produce "compensation" except upon atoms that move within it? What reason is there to believe this?

Thirdly, and finally, "this physical object must be an atom rather than a compound substance. Otherwise some referent other than it would be required to provide a meaning for the distinction between one of its parts and another, and the old difficulty over atomicity would recur." But this "old difficulty" we have already sufficiently considered.

As for the spherical shape of the "macroscopic" atom, which

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plays such an important part in the development of his theology, it is to be noted that Professor Northrop says not one word that even pretends to justify his assumption that it has such a shape.

Professor Northrop's final chapter is far too exciting to be passed over in silence. But this notice is already far too long. I must refrain from commenting upon his ascription of consciousness to both macroscopic and microscopic atoms, and his intriguing definition of "the psychical" as "bare indeterminate experienced quality," and limit myself to the briefest possible indication of the nature of his decidedly startling theology. For the "macroscopic atom" is, in the end, raised to divine honors. It is, in fact, God—or a God—for it is "a primary substance, with a determinate conscious experience . . . the creator of all complex things" (p. 270). "Moreover, it accomplishes this result by merely being what it is . . . the macroscopic atom is literally an 'unmoved mover'" (p. 270). Further, "it functions teleologically as the ideal toward which complex changing systems proceed, as well as the mechanical cause of their procedure" (p. 271). For it "is an eternal entity. Hence its fixed form exists in the future as much as in the past. It appears before us in our relative time series, as an end to which we must adjust our conduct, as well as previous to us as the ground of what we do" (p. 271). God, however, is not omnipotent. "For the microscopic particles possess energy also. Nevertheless, the macroscopic atom is more powerful than all the rest of primary matter combined" (pp. 273–274). It is to be noted that "God has a body" (p. 273). "In fact, were God without a physical body, he would not exist. For the formal or psychical is impossible without the physical" (p. 274). Therefore, "the person who defines God as a purely spiritual or psychical being is really a thoroughgoing atheist" (p. 275). "Now, that which distinguishes the macroscopic atom from other simple and complex substances is its perfect spherical form. Since the formal is what we mean by the rational, it follows that the distinguishing attribute of God is rationality. Moreover, since the spherical form of the macroscopic atom is perfect, and this perfect form constitutes the content of its consciousness, it follows that this atom is the most perfectly and unequivocally clear-headed of all real objects" (p. 275). "The macroscopic atom is perfectly formed, yet physical. Thus it serves both as the ground for existence and the ideal for all conduct. It is at once the source of intelligence, and its inspiration" (p. 278).[2] "The

[2] "Perhaps Western civiliation is at last prepared by its system of universal education for a religion which would make men divine by converting them, with a scientific education that has become philosophical, into rational beings like unto God whose most essential and distinctive attribute is perfect form." (p. 279.) But is it not rather too much to expect of even the most efficient of educations that it should transform a man into the likeness of a hollow sphere?

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spherical shell of the macroscopic atom is a tremendous object off at the edge of the whole physical universe. This is God in the awe-inspiring overwhelming transcendental sense. But the inner field of this atom is in each one of us. This is God in the immanent sense'' (p. 280). Evidently, in him we live and move and have our being.

Professor Northrop's feast of theological riches is not yet exhausted. ''For it appears that there is more than one god'' (p. 281). But here I must pause. One must have a stronger stomach than I to have swallowed even so much. Or, if a banquet should conclude with a sweetmeat, I will just roll under my tongue this odd confection, of mixed metaphor, ornamented by a felicitous touch of the type-setter's art (pp. 236–237): ''This viscious [*sic*] dichotomy between body and mind has echoed down through Western thought to nail the soul of man to a cross by dividing it against itself.''

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The Basis of Belief. WILLIAM G. BALLANTINE. New York: Thomas Y. Crowell Co. 1930. Pp. 230.

Here is a book that outdoes John Stuart Mill in its empiricism. Its title is somewhat misleading, for the book deals merely with logical problems, and does not accept faith or authority as giving any knowledge, not even of the existence of God (p. 201). J. S. Mill is declared to have raised fogs that still cling to empirical logic; Professor Ballantine proposes to state ''the few simple but profound principles that lie at the basis of all scientific reasoning'' and to present ''a comprehensive and consistent analysis of all the various steps in the inductive process'' (p. 5f).

What are these principles? That ''induction by simple enumeration . . . is the solid and only possible basis of all scientific investigation'' (p. 41f), and ''is the basis of our knowledge of every law of nature'' (p. 147). Such enumerations are called ''primary inductions,'' and all other kinds of inductions are said to be derived by syllogistic reasoning either from other primary inductions or from mathematical principles. Truly a simple scheme!

J. S. Mill saw its insuperable difficulties; Professor Ballantine admits that enumerations can rarely be made complete (p. 53), and that some inductions, although seemingly certain, for example, those about white swans and black crows, have been disproved (p. 69). In order to remove these difficulties, he declares, ''Our induction is valid only for the area surveyed'' (p. 37). That must be admitted, but he finds no method of determining the limits of such an ''area''

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except observation (p. 74), beyond which, he asserts, we can know nothing (p. 43). He can not then avoid the objection that the "area" in which a "primary induction" is known to be true is *only* the cases that have *already* been observed, and that we can not be sure it will hold in any new cases whatsoever. Even his illustration, the constancy of the specific gravity of chemical elements (p. 51), partakes of this fault—the discovery of isotopes has shown that an element does not always have the same specific gravity! He admits this fact (p. 70), but nevertheless holds determinedly to the correctness and certainty of "primary inductions" (p. 222). Indeed, exceptions to many observed uniformities have not been found; nevertheless, if induction is merely empirical, it is impossible to escape the conclusion that an exception to any induction may be found at any time.

The "uniformity of nature" is dealt with in a fresh manner; it is declared to be, not the premise of empirical induction, but one of its largest results (p. 59). This statement must be granted, but it avails the author little, for the absolute proof of this principle would not help in justifying an inference from the atomic weight derived from one specimen of a chemical element to that from another specimen, if that element had isotopes! A demonstration of the "uniformity of nature" would not validate empirical induction.

Causation is likewise treated in a fresh manner; Mill is declared to have erred in failing to analyze the different meanings of the term. Ten meanings are accordingly enumerated, the most important of which are efficient and historical causes. Efficient causes (the matter or energy in its reaction upon things) can not precede their effects (p. 118), while historical causes (one event regarded as the cause of another event) do precede them. Mill's canons of difference and agreement are restated in a form nearer to that in which they are used in ordinary reasoning, but with no improvement in their cogency over that attained by Mill.

In accordance with the strict empiricism of the book, science is regarded to be merely the recording of observed uniformities, and scientific discoveries are ideally made by "trial and error" (p. 163). The author neglects the many twentieth-century discoveries of unobserved entities, such as the lattice structure of crystals and the electron, which, together with the movement of the earth around the sun, are literally beyond human observation.

As an example of the difficulties that a purely empirical logic gets into, this book is interesting; in many ways it is admirable, in the clearness and straightforwardness of its thought, in its simplicity of conception, and in the excellent definitions given for its fundamental notions. But it turns a blind eye to too many facts

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that contradict its thesis; fundamentally it belongs to the nineteenth century, not the twentieth.

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La Filosofia dell' Arte. GIOVANNI GENTILE. Milan: Treves. 1931. viii + 377 pp.

This book presents a course of lectures given at the University of Rome in 1927 and 1928. It therefore represents a recent stage of its author's thought, a stage particularly interesting to his American readers since it is posterior to his break with Croce. The difference between the esthetics of Croce and Gentile is like the difference between their philosophies as a whole, a greater degree of precision in outline in the former. It would seem as if *le quattro parole sacre* of Croce represented no intolerable schematism, but to read Gentile upon the subject is to see that they paralyse the stream of pure thought which must retain its lyric spouting if its nature is not to be betrayed.

It would be impossible in a short review to make much sense out of the Gentilean vocabulary in which every vulgar word takes on a special and almost undreamt of meaning. If one is unused to it, nothing but a year's course could relieve it of its obscurities. Avoiding it as much as possible, let us say that Gentile thinks he goes back to De Sanctis and starts anew, as Schopenhauer went back to Kant. Art becomes fused with the moral life through the familiar practice of denying the fundamentality of any differences in human activity. At the same time it is supposed to acquire a deeper importance than it has in systems where it occupies a special place. Were art simply the making of works of art, it would apparently be too insignificant to occupy a philosopher. Once make it a revelation of those hidden sources whence something called Reality flows, it acquires an importance second only to philosophy itself.

The philosophy of Gentile like that of Croce, like that of Fichte and Schelling and perhaps of Hegel, too, like that of Schopenhauer and certainly of Bergson, like that of all the Neoplatonists and Neopythagoreans, is a kind of lyric insight which should be judged by its beauty rather than its truth, where truth means correspondence with fact. As a charming myth, in which the characters are abstract terms, it ranks with the greatest, and, were it expressed with less rancor, one could read it with a pleasant feeling of reading a philosophical poem. Unfortunately Gentile is a man whose wounds are still bleeding and when he speaks of him whom we used to believe his master, almost his other self, he descends to depths which we associate with debating clubs rather than the Lyceum or Academy.

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At the same time it must be said that when Gentile is discussing an actual work of art, he becomes inspired. Ion himself could not be more eloquent than this Italian who writes on the experience of reading Dante. Most estheticians, one finds, who attempt to describe esthetic experiences, indulge in a kind of flowery rhetoric which shows their prolonged adolescence rather than any real appreciation of what they are discussing. Gentile's patches are purple enough, but they are at least hand-dyed and not bought by the yard and sewn on afterwards. Which metaphor simply means that in spite of his faults Gentile can write with sincerity and spontaneity and although one can learn little critical philosophy from his book, one can enjoy a week or two of diverting reading.

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JOURNALS AND NEW BOOKS

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NOTES AND NEWS

Dr. Percy Hughes, formerly professor of philosophy and psychology, at Lehigh University, has been elected to the Clara H. Stewardson Chair in Philosophy at that institution, and the Department of Philosophy is to be set up as a separate department.

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THE JOURNAL OF PHILOSOPHY

BIOLOGICAL RELATIVITY

1. PSYCHIC REGRESSION AND BIOLOGY

OF the various concepts employed by psychoanalysis, the concept of regression is one of the most useful. A psychic regression may be defined as a return to an earlier state of behavior, accompanied by the disappearance of later acquired forms of behavior. In the course of such psychic atavism there appear forms of behavior which have hitherto been inhibited by the individual, these forms representing the earlier responses characteristic of the level of conduct dominated to a large extent by instinct.

In some cases it is clear that this loss of the more recently acquired and less firmly established responses is correlated with a very definite degeneration of nervous tissue. Hughlings Jackson[1] regarded progressive mental dissolution as being due to the loss of control of the superior nervous centers over inferior centers. He argued that the mental symptoms (illusions, hallucinations, extravagant conduct, etc.) associated with the dissolution of nervous tissue are the manifestations of the activities of structures of lower (more primitive) levels of evolution.

More recently, and in another field, it has been established that in visual perception response to *brightness* represents the most primitive level, *pattern* or *form* perception the second level, and response to *color* the most recently acquired function. Dr. K. S. Lashley[2] states that pattern perception (he might have added color) is localized in the cortex and discrimination of brightness may be wholly a function of the thalamus and midbrain. In cases of progressive degeneration these functions disappear in the reverse order of development. In this connection it is interesting to recall that, within the field of color response, Mrs. Ladd-Franklin regarded partial and total color blindness as different stages of atavistic visual perception.

A further illustration of biological levels of synthesis is as follows. On the basis of experiments on the regeneration of nerves

[1] *The Evolution and Dissolution of the Nervous System*, 1884.

[2] "Mass Action in Cerebral Function," *Science*, 1931, Vol. 73, p. 248.

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Sir Henry Head and his colleagues have distinguished two kinds of mechanisms on the afferent side of the nervous system. These are (1) the *protopathic* stage, characterized by the absence of any exactness of discrimination or localization, and by the presence of pronounced feeling tone; and (2) the *epicritic* stage, which marks the return to normal spatial perception of exact discrimination and localization. It is probable that these two types of sensibility represent distinct stages in the evolution of cutaneous perception. According to Head [3] and Holmes, the relation between protopathic and epicritic sensibility is analogous to the relation between the cerebral cortex and the optic thalamus. In the opinion of C. S. Myers [4] the protopathic system is responsible for the outbursts of volitional energy described by "act." This system is readily fatigued. The epicritic system yields the moderate and continuous activity which is illustrated by the "set" of unstriped (involuntary) muscles.

The psychological implications of this inhibition by the cortex of the tendency towards affective over-response by the thalamus have been drawn by W. H. R. Rivers in his book, *Instinct and the Unconscious*. He believes that these two systems are not only distinct anatomically, but separate in date of acquisition. This example of the repression of the mass reflexes of the lower level by higher centers is a common occurrence. In some cases, Rivers states, it seems that we are not dealing with the suppression of individual experience, but with the suppression in the race of experience belonging to an earlier phase of evolution. This suggests that racial suppression is repeated in every individual as part of the recapitulation of racial history.

In cases of purely functional disorders there may be no discoverable degeneration of nervous tissue to parallel the psychic regression. From the fact that in some cases a permanent cure can be produced through proper treatment it would appear that psychic regression need not be accompanied by somatic degeneration. But even in such cases physiological concepts may be applicable. Ribot emphasized the fact that regression represents an economy of effort in reacting to a situation which is too difficult for the individual to cope with otherwise. In this respect regression may be considered as a "shirking" reaction. From the point of view of many psychoanalysts religion, with its emphasis upon the Fatherhood of God and the infantilism of man ("Lest ye become as little children") is a regression. "Split" personalities, involving the dominance of a more juvenile self, also represent an easier way of reacting.[5] Freud

[3] *Brain*, 1911–12, Vol. 34, p. 112.

[4] "Conceptions of Fatigue and Adaptation," *Psych. Rev.*, 1925, Vol. 33, 1–17.

[5] On this point see H. H. Goddard's "A Case of Dual Personality," *J. Ab. & Soc. Psy.*, 1926, Vol. 21, 170–190.

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carries this tendency towards refuge in childhood reactions much further. He believes that this tendency towards a reinstatement of an earlier condition has its first manifestation in the instinct of life to return to the lifeless matter out of which it originated. Thus Freud is led to the self-refuting hypothesis that "the goal of life is death." [6]

It has been suggested that this concept of regression throws light on problems in different fields. In the field of science and philosophy the concepts of psychoanalysis have been applied by C. J. Jung in his book, *Psychological Types,* and by Alexander Herzberg in his treatise, *The Psychology of Philosophers.* In the field of logic the writer [7] has suggested a possible application of the notion of psychic recapitulation.

Objections to this type of theory are, of course, not wanting. In the first place it must be noted that from the point of view of logic it is quite a jump from the admission that certain phenomena in adults are more or less *analogous* to the behavior of an infant or the activities of primitive man to the assertion that they are *identical* with such behavior. This difficulty will be considered in a following section. A further objection to this mode of explanation is made by E. S. Ames, who states [8] that the theory of recapitulation—that the child retraces the steps of racial development—is not altogether reliable, and must be modified by the recognition of "short cuts" and the influence of the immediate social environment.

A final and more serious objection arises out of the following circumstance. It is clear to the well informed that the doctrine that in his individual mental development the human being passes through the steps of previous phylogenetic evolution resembles the biological doctrine of the inheritance of acquired characteristics. The theory of "psychic recapitulation" and the "culture epoch" theory correspond rather strikingly to Haeckel's famous biogenetic law, according to which ontogeny recapitulates phylogeny. To be sure, many who accecpt this generalization as being approximately correct have not been advocates of the Lamarckian doctrine. Nevertheless, some present-day psychoanalysts who regard the unconscious of the individual as the epitome of the phyletic heritage specifically ally themselves with the Lamarckian doctrine of the inheritance of acquired traits (experiences). This then throws the doctrine open to all the criticisms levelled against Lamarck's theory of the effects of use and disuse. Before considering the seriousness of this difficulty, let us see how the Lamarckian theory has functioned in those systems which have attempted to trace a fundamental connection between heredity and biological memory.

[6] *Beyond the Pleasure Principle,* p. 47.
[7] O. L. Reiser, *Humanistic Logic,* p. 105.
[8] In his book, *The Psychology of Religious Experience.*

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2. Heredity and Biological Memory

The similarity between memory and heredity has appealed to a number of thinkers. So far as the writer is aware, Samuel Butler's work on *Unconscious Memory* (1880) was the first in which an attempt was made to demonstrate a connection between these two conservative factors. Ewald Hering's work *On Memory as a General Function of Organized Matter* (Eng. trans., Chicago, 1895), where he developed the notion of memory as a general property of organic tissue, was one of the most original attempts at a working out of a systematic conception of the relation between memory and heredity.

Hering states: "Through frequent repetition, one particular kind of function becomes, as it were, the second nature of a single cerebral cell, i.e., the cell acquires this special ability or energy. In this way the individual energies of the cerebral cells and fibers are developed by education on the basis of inherited dispositions. Also the additional energy, which the cells acquire during life, is transmitted by inheritance to the new-formed cells which are generated by partition. These new cells can in turn develop, evolve, or modify the inherited energy" (p. 44). Writing before the appearance of Mendelism, Hering supposed that the living germ-substance for each animal species had its specific properties or energy. Thus the "specific energies" theory, first formulated by Johannes Müller, is linked with the theory of the inheritance of acquired characteristics.

The next important development of this theory was presented by Richard Semon in his book, *Die Mneme* (Leipzig, 1904). Semon's conception of phyletic memory, as exhibited in instincts, habits, and "pattern reactions," is based on the idea that etchings on protoplasm by external stimuli leave certain reaction tendencies called engrams (*engrammes*). These are built up by the repetition of stimuli and passed on through evolution. Memory is a complex synthesis of engrams.

The work of Eugenio Rignano, *Sur la transmissibilité des caractèrs acquis* (Paris, 1906), constituted a further stage in the development of the doctrine. Rignano's view is interesting because he tries to be more specific in providing a mechanism which will bring together the facts of heredity and memory.

Rignano's hypothesis (best stated in his more recent book on *Biological Memory*) assumes the existence of "specific nervous accumulators." The fundamental idea is that every functional stimulus is transformed into a specific vital energy, and deposits in the nucleus of the cell a specific substance which is capable of discharging in an inverse direction as soon as the dynamic equilibrium of the organism is restored. These specific nuclear substances, different for each cell, are accumulated also in the nuclei of the germinal sub-

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stance, constituting what Rignano calls the central zone of development. In other words, each functional adaptation changes slightly the dynamic equilibrium of the organism, and this change in the system of distribution of the nervous currents leads to the deposit in the central zone of development of a new specific substance. In the development of the next individual this new specific element enters into activity and reproduces the nervous current which formed it, as soon as the organism reaches the same conditions of dynamic equilibrium as those which obtained when the stimulus acted on the parent. Development can thus be regarded as consisting of a number of stages, at each of which new specific elements enter automatically into play and lead the embryo from that stage to the next.

While this view, in its general outlines, has appealed to some investigators (G. W. Crile and E. W. MacBride, for example), most biologists are unable to accept its tenets. Professor C. M. Child, for instance, has pointed out to the writer that Rignano's conception assumes the truth of the dubious doctrine of the specific energies of the nervous system. But aside from theoretical difficulties, there is the question of the empirical evidence in favor of the Lamarckian hypothesis upon which the view of Rignano, no less than the similar views of Hering and Semon, rests. The problem of adjusting the theory of psychic recapitulation to one's attitude on the Lamarckian hypothesis is one we left undecided, but now we must return to this question.

The conclusion which seems to come out of the foregoing discussion is this: If one believes in the doctrine of the transmission of acquired traits (including habits, which are *experiences* repeated until they acquire engrammatic character), it is natural to believe in the explanation of psychic regression as an instance of mental recapitulation, an atavistic reversion to more primitive levels of biological memory. But now the real problem arises. If one is convinced of the fact of psychic recapitulation, does this carry with it as a necessary logical consequence the acceptance of the doctrine of the inheritance of acquired characteristics? It seems to me that the answer to this question is no. A critic with an eye open to all possibilities might point out that here we are not faced with a true disjunction. It is not a case of accept Lamarck and psychic atavism goes with it; reject Lamarck and psychic recapitulation is rejected with it. It may be pointed out that there are other possibilities. The hypothesis of parallel induction,[9] for example, admits of the possibility of the appearance in subsequent generations of structural modifications which *apparently* are a result of the functioning (experience) of an organism, but which *in fact* are a result of changes

[9] For a discussion of this notion see Seba Eldridge's *The Organization of Life, passim.*

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which occurred simultaneously in the somatic and germ cells, without there being any causal interaction between the bodily activities and the genetic units. This is merely mentioned as a possibility; other alternatives are perhaps conceivable. At any rate the ideas developed by Head and Rivers do not appear to rest on the Lamarckian hypothesis for their validity.

It is, of course, appropriate to point out that even if it should be proved that there is a necessary connection between psychic recapitulation and the transmission of acquired characteristics, this does not absolutely invalidate the explanation of psychic regression. The common objection to Lamarck's theory, that no mechanism has been discovered (or is even conceivable, it is sometimes stated) whereby individual experiences and the accompanying somatic modifications can influence the germ plasm, and thus become transmitted as hereditary effects, is in fact no objection. William McDougall is entirely correct in stating that even though we can not visualize how a process takes place, this does not render the fact of such an interaction impossible. The inability to conceive *how* a thing happens is no reason to deny *that* it happens. As a matter of fact, J. S. Cunningham in his book on *Hormones and Heredity* has suggested that these very potent "chemical messengers" may be the formative stimuli and bearers of racial memories, thus supplying a possible mechanism for the interaction. D. L. Watson [10] has also made some suggestions to take care of this difficulty.

These considerations might serve to make us sufficiently open-minded about the Lamarckian hypothesis, so that we could consider the theory of mental regression and recapitulation on its own merits. But there is another approach to this matter, and since this promises to throw light on some other dark corners of science, we pursue this path for what it is worth.

3. Structure and Function

By way of approach let us first point out that the theory of psychic recapitulation is arrived at as a result of *reasoning by analogy*. Scott Buchanan [11] and the writer [12] have independently pointed out that reasoning by analogy may be put in the form of a proportion, as follows:

$$\frac{A}{B} = \frac{C}{D} \quad \text{or} \quad \frac{\text{Old problem}}{\text{New problem}} = \frac{\text{Old solution}}{\text{New solution}}$$

This is usually the form that reason follows in arriving at new hypotheses, which serve as tentative solutions to problems. This pat-

[10] "Biological Organization," *Quart. Rev. Biol.*, 1931, Vol. 6, p. 161.
[11] *Poetry and Mathematics.*
[12] *Humanistic Logic.*

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tern is the conventional guide because solving problems, adapting ourselves to a novel environment, is a matter of *transposing* an adequate response to some old situation to the new stimulus pattern. As the writer has shown,[13] the theory of intelligence presented by gestalt psychology rests upon reasoning by analogy, for when you transpose an old gestalt into a new situation you are transposing a *set of relations*. Such a gestalt as a musical phrase consists in the relations between the notes of the musical melody of which it is composed, and the transposed melody possesses a similarity of structure paralleling the old melody.

This notion of *relation structure* is coming to be recognized as a concept fertile in its applications. Bertrand Russell[14] points to its epistemological significance in the following lines:

> We naturally interpret the world pictorially; that is to say, we imagine that what goes on is more or less like what we see. But in fact this likeness can only extend to certain formal logical properties expressing structure, so that all we can know is certain general characteristics of its changes. Perhaps an illustration may make the matter clear. Between a piece of orchestral music as played, and the same piece of music as printed in the score, there is a certain resemblance, which may be described as a resemblance in structure. The resemblance is of such a sort that, when you know the rules, you can infer the music from the score or the score from the music.

L. T. Troland[15] sees in this principle a possible clue to the problem of the relation of brain and consciousness. After stating three general principles governing the relation between the brain and consciousness, Troland sums the matter up as follows:

> All of these principles can be combined into the general statement that consciousness and the brain mechanism which underlies it have a similar logical *formula*. As an example of the meaning of this statement we may consider the case of a motion picture and a novel, both of which portray the same story. . . . A piece of music as played by a pianist and the score which he has before him are radically different things, and yet they have a corresponding structure.

The way in which this similarity of "structure" enables us to relate mind and body is not our immediate concern. Here we need only point out that the notion of "insight" as a case of analogical reasoning (transposition of sets of relations) finds support in the view of L. L. Whyte,[16] who states that "intuition is the recognition of the similarity of relation-structure in two situations, and reasoning the tracing of the consequences of this similarity." A similar view has been presented by S. K. Langer.[17]

[13] "The Logic of Gestalt Psychology," *Psych. Rev.*, 1931, Vol. 38, 359–368.
[14] *The A B C of Relativity*, 1925, p. 227.
[15] *The Mystery of Mind*, 1926, p. 203.
[16] *Cf.* his *Critique of Physics*, 1931, p. 163.
[17] In her book, *The Practise of Philosophy*, 1930, pages 87, 101, 166.

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It thus appears that creative thinking follows a simple formula, a pattern which comes naturally out of the principles of gestalt psychology, and, through the concept of similarity of relation-structure, elucidates the relations between phenomenal and physical patterns. Developing this view, the writer[18] has proposed that the principles of gestalt psychology may be fitted into the pattern of the Hegelian dialectic as reinterpreted in terms of the contemporary theory of emergent evolution.

As Hegel recognized, thought is a result of a movement between opposites. The subject of thought (the *A*) must neglect the negative (the *not-A*), though over a period of time what was previously neglected may itself become the object of thought. In terms of gestalt psychology, the concepts which form the structural units of thought are like the *figures* which stand out against their *grounds* because the energy enclosed by the figure is greater (more concentrated) than that of the hinterland. The first thesis, the *A*, is the figure; the antithesis, the *not-A*, is the ground; and the synthesis is an emergent gestalt. There is thus an intellectual integration of the terms of the analysis whereby the mind progressively reorganizes itself in time. As a result of the interaction between an organism and its environment, and between the different (relatively isolated) systems (gestalten) within the organism, a new set of relations appear, which can not be explained in terms of either pole of the duality taken by itself. From this point of view mind might be regarded as the process whereby the incomplete strives towards completion. In a sense the organism's responses to its own reactions *is* the mind, and it is this which makes possible creative thought. Or in other terms, mind is the temporal process whereby the organism tries to harmonize the part-processes with each other, resolving conflicts, and thus reconciling the opposition of the thesis (the *figure*) and the antithesis (the *ground*) in a new synthesis (gestalt). This is our version of what G. P. Conger calls the "implicit duality of thinking." In thinking, as in biological evolution and individual development, analysis (differentiation) and synthesis (integration) are complementary and mutually implicative processes. Thus we introduce the concept of *transcendence* which, as R. M. Ogden has pointed out, is really necessary to the system of gestalt psychology.

And now we consider the implications of this for the problem of the structuralization of function, the problem of biological memory. Since reasoning by analogy, or the transposition of gestalten (relation-structures), is the method of gaining hypotheses, the hypothesis gained in this case must exhibit a pattern similar to our

[18] *Cf.* "Physics and the Laws of Thought," *Psyche*, April, 1931.

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formula. This is indeed the case, for the doctrine of psychic recapitulation may be summarized as follows:

$$\frac{\text{Individual mental evolution}}{\text{Racial mental evolution}} = \frac{\text{Individual biological development}}{\text{Phyletic evolution}}.$$

Now if it is true, as we maintain, that reasoning is the cerebral counterpart of the general biological differentiation of part patterns within larger wholes (as G. E. Coghill's work suggests), while evolution, on the other hand, is the phylogenetic counterpart of the self-transcendence evident in thinking as it moves on to new integrations of response, then it necessarily follows that mental evolution recapitulates racial evolution (except for short-cuts) because body (mutations excluded) consists of conventionalized behavior (structuralized energy-patterns). In brief, structural gestalten are simply crystallized functional gestalten.

This idea has been approximated by various different investigators. Lloyd Morgan's statement, in his volume on *Emergent Evolution* (p. 29), that "life stands to matter in the same relation as mind stands to life," is only another way of putting S. Alexander's thesis that time is the mind of space. That is:

$$\frac{\text{Life}}{\text{Matter}} = \frac{\text{Mind}}{\text{Life}} \quad \text{(Lloyd Morgan)},$$

$$\frac{\text{Time}}{\text{Space}} = \frac{\text{Mind}}{\text{Body}} \quad \text{(Alexander)}.$$

If we ask, What is the fundamental phenomenon of nature of which all other levels are analogies? the answer, I think, will be given in terms of a dualism of *structure* and *function*. That is:

$$\frac{\text{Time}}{\text{Space}} = \frac{\text{Energy}}{\text{Matter}} = \frac{\text{Life}}{\text{Protoplasm}} = \frac{\text{Consciousness}}{\text{Cortex}} = \frac{\text{Function}}{\text{Structure}}.$$

If one thinks of mind as a manifestation of the behavioral aspect of the body, and if one accepts the statement of J. H. Jeans[19] that in multi-dimensional geometry time plays the rôle of the next highest dimension, then it is possible to restate the ratio thus:

$$\frac{\text{Mind}}{\text{Body}} = \frac{n+1\text{-dimensional space}}{n\text{-dimensional space}}.$$

In a sense we have thus explained psychic recapitulation, but in another sense we are exactly where we were when we started out—except that we now see that we will never get anywhere else. This, however, does not prevent us from making further progress in connection with the subject of biological relativity.

[19] *The Mysterious Universe*, p. 129.

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4. Biological Relativity

Poets have frequently compared life to a candle. The analogy is really an identity, for life is literally a process of combustion, and oxidation is the flame of life. The thesis of the chemist, that when one substance is oxidized another is reduced, applies equally well to organic processes as to inorganic reactions. Oxidation and reduction are complementary processes, occurring in conjunction. Since the organism is able to facilitate these oxido-reductions between different substances, it is perfectly correct to regard life as an oxidation-reduction rhythm.

Many thinkers have pointed out the rhythmic character of the life processes. One of the finest expressions of this rhythmic character has been given by A. N. Whitehead,[20] who, however, does not speculate about the physiological underpinning of the rhythm which is life. But the fact that it is this interplay of oxidation and reduction which accounts for so many synthetic reactions of protoplasm—such as the formation of fats from the sugars, which is ultimately a matter of oxidation-reduction—certainly lends support to the idea that the rhythms of life are oxido-reductant rhythms.[21] The power of living matter to carry on such oxidative and reductive transactions is dependent upon the presence of biocatalysts. Among such catalysts are the enzymes, water—which has the ability to facilitate organic reactions—and perhaps also radiations (light).

It is now generally recognized that the oxidation-reduction reactions of protoplasm are at bottom electrical responses, involving the transfer of electrical charges.[22] Starting from the conception that all processes of oxidation involve the transfer of negative particles from one element to another, the one which receives the negative charge being reduced and the element losing it being thus rendered more positive and being said to be oxidized, we arrive at the conclusion that every bioelectric process involves a minute action current, as the charge is passed from the oxidizing to the oxidized body.

[20] *The Principles of Natural Knowledge*, Ch. 18.

[21] In his book, *Protoplasmic and Nervous Action*, R. S. Lillie states (p. 403) that "growth, repair and recovery from stimulation are the result or expression of chemical reactions, of the same general kind, apparently oxidative syntheses, which occur predominantly at the polar region." This view is entirely in accordance with the theory of C. M. Child that regions of higher metabolic rate control those of lesser rate. Thus, in his book on *The Origin and Evolution of the Nervous System*, Professor Child concedes (p. 84) that if oxidation and synthesis are associated, the physiological gradients are determined by regions of higher metabolic rate.

[22] *Cf.* A. P. Mathews, *Physiological Chemistry*, p. 258.

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This idea has been developed in a systematic form by E. J. Lund,[23] who believes that the electric polarity of the cell is quantitatively correlated with the respiratory exchange of the cell and that electric currents accompany cell oxidation. Thus bioelectric currents are held to provide the basis for cell correlations. Lund has advanced the idea that bioelectric currents produced by the cells are the result of the oxidation-reduction potentials. He holds that stimulation changes the electric potential and therefore the electric polarity of the cell, because it temporarily accelerates the reaction reductant → oxidant, thereby changing the *ratio* of oxidant to reductant. By an adaptation of the familiar Nernst formula for the oxidation-reduction potential the following equation

$$E = E_0 - \frac{RT}{nF} \log \frac{[\text{ox}]}{[\text{red}]}$$

is developed to cover the various phenomena studied.

And now we return to the notion of biological relativity by first calling attention to our thesis[24] that gestalt psychology would gain much by developing more systematically the physiological implications of the theory of psychological relativity. It was previously pointed out that in the case of a melody, which can be *transposed,* the gestalt consists in the *relation* between the "notes" (in general the elements of any phenomenal pattern). The gestalt, therefore, is not invariably localized in any specified set of neural elements. As S. H. Bartley informs me, while psychologists still talk of one set of neurones doing one thing and another set doing something else, the actual results indicate that the same cortical tissue may be both active and passive at the same time. That is to say, cerebral action currents are such only by virtue of a difference of potential at two points at a given time. Whether such a bioelectric current will appear depends upon where one electrode on the cortex is with respect to the other. This relativity of action currents must be a manifestation of the biochemical relativity of the oxidation-reduction rhythms (redoxpotentials).

In the human being the oxidative reactions go on most rapidly in the brain, which is the vehicle of consciousness. The extreme sensitivity of cerebral activity and of consciousness to oxygen deprivation points to the exceptionally high metabolic rate of nervous activity. Why, then, we ask, should we not consider the facts of psychological relativity, so obvious in the case of sensory percep-

[23] "Relations between Continuous Bioelectric Currents and Cell Respiration, V," *J. Exp. Zool.*, 1928, Vol. 51, 327–337.

[24] *Cf.* "Physical Relativity and Psychical Relativity," *Psych. Rev.*, 1930, Vol. 37, 257–263; "Contributions of the New Physics to Philosophy and Psychology," *Psyche*, 1930, Vol. 11, 65–87.

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tion (e.g., simultaneous color-contrast, in the case of vision) as a phase of the relativity of cerebral action currents to the total state, which is the brain as a whole, including past experience? In Lund's view the reaction velocity reductant → oxidant is a result of a *ratio* (proportion) of the electric potential, which makes it a relative matter. The notion that oxidation-reduction is an instance of what W. H. Manwaring [25] terms "biochemical relativity" is intimated by F. Knoop [26] when he states that probably every organic substance in the body has *in relation to every other* a certain redox-potential, which will vary according to conditions, for example, of the hydrogen ion concentration, temperature, oxygen concentration, the catalysts present, etc. Thus we have a biochemical relativity paralleling the psychological relativity which Professor Köhler has emphasized in his book, *Gestalt Psychology*. The way in which this bioelectric relativity might explain the "attraction" of two "similar" mental processes for each other has been suggested by the writer in a paper already referred to.

These ideas appear to be consistent with our espousal of certain of the concepts of psychoanalysis. No one has attempted a synthesis of psychoanalysis and gestalt psychology. When and if such a synthesis is achieved, it seems to me that it will come by way of the notion of biological relativity. Here are a few suggestions looking towards such a unification.

The relativity of the processes which underlie the psychoanalytic study is illustrated by such notions as "repressions." Whether the pressure exerted by the psychic censor to repress an experience or tendency is sufficient to keep it below the "surface" of the stream of consciousness depends upon the *relative strength of the impulse in relation to the force of resistance or inhibitory power*. Here we are again dealing with a dynamic situation. Pavlov's work on conditioned reflexes has shown that it is the cerebral cortex, with its powers of inhibition, which compels the coöperation between otherwise independent nerve centers. In the human animal the visual areas have come to dominate the conscious realm to a much larger extent than in lower animals, where the brain is more of a smell organ. But this fact does not justify the customary statement that in human beings the sense of smell has *degenerated* in favor of the distance receptors. Smell has been *repressed;* but when the cortical pressure is removed there may be a reversion to the more primitive level. Anyone who has studied epileptics psychoanalytically gets an

[25] *Science*, 1930, Vol. 72, p. 25.

[26] "The Mutual Influence of Organic Compounds in the Animal Body," *Science*, 1930, 23–25.

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excellent idea of how unrepressed smell comes into its ancient own in volcanic anal erotic sadistic activities.[27]

The notion that psychic relativity arises out of the relation of part-processes to the whole has been proposed by Theodor Lipps[28] as an explanation of Weber's law. The present view holds that in addition to the "local" bioelectric currents there is some all-inclusive field associated with the body. This supposition is in harmony with Darcy W. Thompson's[29] suggestion that a comprehensive field of force running through an organism somehow shapes it, independently of the individual cells which enter like froth into its fabric. This all-encompassing field the writer has variously called a "superior coördinating force," a "macroscopic rhythm," etc.[30] The mode of interaction between local processes and the mind is conceived to be through the electromagnetic field.[31] In chemical reactions light frequently acts as a catalytic agent; the action of radiation is especially favorable to processes involving oxidation and reduction. It may be objected that the fields of force which necessarily must accompany the electromotive forces present in cerebral reactions can not be very strong, but we must not forget that such fields might be strong enough to initiate processes which then proceed on their own free (potential) energy.

If the supposition is correct that this comprehensive field is analogous to a new dimension, it follows that the only way to study the mind directly is to *experience* it. How this reality, an additional temporal dimension, acts as a morphogenetic force to assist in controlling phyletic and ontogenetic evolution is a question that can not be handled now.

5. Relativity in Logic

In a review of the writer's book on *Humanistic Logic* F. C. S. Schiller[32] criticizes the writer for alleged self-contradiction in the treatment of the *laws of thought*. Since the present essay deals with

[27] This fact has been pointed out to me by Dr. Smith Ely Jelliffe. I may say that the present paper shows the influence of Dr. Jelliffe's suggestions, and that it is in part an attempt to meet certain objections that Dr. Jelliffe has made to a paper by the writer on "The Biological Origins of Religion," to appear in a forthcoming issue of the *Psychoanalytic Review*.

[28] See his paper "The Law of Psychic Relativity and Weber's Law," in his *Psychological Studies*, Baltimore, 1926.

A further instance of psychological relativity is given by Harry Helson in his paper, "The Tau Effect—An Example of Psychological Relativity," *Science*, 1930, Vol. 71, 536–537. The quantitative study appears in *J. Exp. Psy.*, 1931, Vol. 4, 202–217.

[29] *On Growth and Form*, p. 200.

[30] Professor G. P. Conger's criticism of my view in his book, *A World of Epitomizations* (p. 16), is based on a misinterpretation.

[31] For a further statement see *The Alchemy of Light and Color*.

[32] In the *Personalist*, April, 1931.

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the applications of logic to nature, a few comments on this matter are appropriate.

The logical position in harmony with the present view is that the "laws" of thought can and can not be violated by human thought. With Dr. N. Rashevsky [33] we agree that the *law of identity*, that only one meaning can be ascribed to any term at any moment, arises from the fact that normally alternative neuro-muscular sets can not be innervated simultaneously. If I think of *A*, I can not think of *not-A* at that same time. What is the "figure" can not be the "ground" simultaneously. At a later time one can ascribe different properties to *A* (any term). Thus words may become ambiguous, and in an evolutionary world there appears to be a violation of the law of identity. To facilitate social discourse and understanding human groups have accepted it as a regulative ideal that the same word should be used in the same sense by each individual for as long a time as possible, after which redefinition is legitimate.

The trouble with Professor Schiller [34] is that he fails to see that logic must learn to render unto Caesar (empirical science, which defines its terms by *inspection*) the things that are Caesar's, and unto God (the platonic realm of mathematico-logical universals, which are defined by *postulation*) the things that are God's. Our own attempt to apply a Hegelian view does not, for me, mean a denial of the law of excluded middle (Hegel to the contrary notwithstanding), for the entities and operations of logic have no empirical content and therefore do not evolve. In this connection it may be pointed out that if the "logocentric" predicament [35] as understood by H. M. Sheffer means that the logic we use in reasoning about logic can only be of one type, then this view is open to criticism. It seems to me that it might be possible for man to reason according to the principle that a term does not mean what it means. Theoretically the main difficulty with this would be that words then acquire an infinite number of meanings. The practical difficulty of carrying on human social life under such a circumstance constitutes a sufficient justification for our adhering to the "old" logic. Rejecting the laws of thought (in the only sense in which they can be rejected) would make it impossible for logicians to converse, and only an insane man can afford that luxury. It may be added that an insane man is by definition one who indulges in this privilege. It is interesting to note that Dr. Rashevsky informs me that in his own dreams he sometimes is himself as well as some

[33] "Possible Brain Mechanisms and their Physical Models," *J. Gen. Psych.*, July, 1931.

[34] As instanced by his treatment of the laws of thought in his book, *Logic for Use, passim.*

[35] For a statement of this see R. M. Eaton's *General Logic*, p. 385.

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one else simultaneously. All I can say is that I do not have this type of experience, and that anyone who does is crazy—so long as he dreams!

OLIVER L. REISER.

UNIVERSITY OF PITTSBURGH.

ON THE MEANING OF A PROPOSITION

IN an article entitled "The Sacrifice of Barbara" (*The Personalist*, Oct., 1931) Mr. F. C. S. Schiller carries on his "mission" of fighting Formal Logic in connection with the two recent summaries of modern logic by Mr. Eaton and Miss Stebbing. But this time one can not help noticing behind the shield of sarcasms a change in the tone of Mr. Schiller's criticism: he is evidently much impressed by these two books. He admits that both Miss Stebbing and Mr. Eaton "have written good books," which present "a more perfectly formal form of Formal Logic," though he should rather brand them as deceitful sophistications, since he maintains that they are based on the same unjustified foundation as Aristotelean logic. Does it mean that Mr. Schiller is ready to make concessions or even is close to "conversion"? I would not be surprised if it comes to that, because it is easily seen from his article that only misunderstandings on his part estrange him from modern logic. The purpose of this note is to straighten the matter in the hope of facilitating Mr. Schiller's conversion. I shall consider, however, only the main point of his criticism.

Mr. Schiller observes correctly that modern logic is based on the concept of proposition, but he tries to undermine this basis by pointing out that the meaning of a proposition is different in different uses and contexts, and consequently propositions are ambiguous and unreliable for building up the foundation of logic. Thus to say that a proposition is true is ambiguous, because "it may be true in one sense and use, and false in others."

The answer to this criticism is that the meaning of a proposition is not a distinct entity from the proposition itself. The meaning of a proposition is the proposition. Hence the same proposition can not have different meanings in different contexts and uses, though, of course, many different propositions may be associated with the same verbal expression (sentence) on different occasions. The supposition that a proposition could change its meaning betrays a most astounding anthropomorphism: a proposition being inanimate is not subject to growth or willful modifications. I am sure Mr. Schiller really does not believe that propositions can change by themselves. He probably means that people change their minds and often, with-

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out noticing it, replace one proposition by another; especially when these propositions are connected with the same sentence, or when they differ but slightly from one another. Thus it is very likely that he confuses proposition with sentence, which accounts for his accusation that formal logic is verbal.

But it may be that Mr. Schiller merely wants to express his belief that in actual discourse people never talk about the same proposition, i.e., each person associates with the same sentence a different meaning (proposition). On this score logic would be criticized as inapplicable to practice. But certainly in a soliloquy one can consistently use the same sentence with the same meaning. And when several persons are engaged in a discussion the purely verbal misunderstandings are usually removed.

When there is a dispute as to the logical meaning of a sentence, the practical way for an agreement is the use of a convention to the effect that the logical meaning is the *minimum meaning* (i.e., the least amount of connotation) of all meanings which are associated with the given sentence. Perhaps it is often difficult to determine the minimum meaning. Let us say it will sometimes remain an ideal. Nevertheless this ideal is logically important in that the attempt to realize it increases the precision of thinking. The science of geometry likewise starts with ideal elements. Yet it is indispensable in the construction of buildings.

A. USHENKO.

UNIVERSITY OF MICHIGAN.

BOOK REVIEWS

Das Psycho-Physische Problem. Zweite, verbesserte Auflage. ROBERT REININGER. Wien: Wilhelm Braumueller. 1930. Pp. vii + 287.

The psycho-physical problem as such consists in making a distinction between the physical and psychical. It does not directly nor exclusively have anything to do with the mind-body problem. It is the author's major objective to indicate the ultimate foundations of the traditional and current psycho-physical distinction. The solution of this problem is only possible with reference to an analysis of the data regarding the immediate consciousness; because all forms of ideation or representation, being twice removed from the given, successfully conceal the real roots of the elementary psycho-physical antithesis. In an effort to see the bases of the psycho-physical distinction not in the antithesis of the conceptually substantialized outer world or of living matter, but in the differ-

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entiations of consciousness itself, the author does not offer so much a new theory as a clarification of the whole problem.

The introduction deals briefly with the historical background of the psycho-physical distinction. While the distinction is always assumed as a matter of course in philosophical literature, it is scarcely ever characterized in such detail as Professor Reininger characterizes it.

Before presenting a concise summary of some of the conclusions the author reaches as a result of the painstaking examination of the psycho-physical problem as a whole, I shall enumerate the various topics of the five chapters of the book. Chapter one deals with the conception of consciousness and its problems. In chapter two the author comes to close grip with the psycho-physical distinction. In chapter three the relationship of the psychical and physical is diligently scrutinized. In chapter four the science of the physical and psychical is considered with reference to natural science, psychology, cultural sciences, and transcendental philosophy. The final chapter deals with the metaphysics of the physical and psychical. The discussion of the origin of the concept of reality is singularly appropriate in view of Professor Morris R. Cohen's recent attack of the same in *Nature and Reason.*

I. The author makes a distinction between consciousness and animation. Animation is self-experience. Ensouled self-consciousness consists in an elementary general feeling of existence, vital feeling, or ego-experience. Because of this biologically conditioned self-consciousness, the distinction between an outer and inner world arises. The component parts of the external world (of ideas) are not parts of the inner world.

II. Every segment of reality has a representational (ideational), objective, and an experiential, subjective aspect. Every datum of consciousness is intimately connected with the primordial vital feeling of its subjective, experiential aspect. The ego is nothing but the unitary, still undifferentiated center of the total experience of every momentary mental state. The psychical ego can, as such, not be represented. Every attempt to do so leads to a translation into corporeal images. It is a perpetual present, and not subject to time. The empirical self-consciousness is a mutual interpenetration of ego-experience and ego-representation.

III. The distinction of the physical and psychical in all of its forms is based upon the antithesis of a representing and experiencing consciousness. Such is justified only with reference to a quantitative difference between the physical and psychical. The psychical is the experiential aspect of every mental state; whereas the physical is the representational or ideational aspect of every mental state.

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There are thus no physical and psychical phenomena; but only a physical and a psychical component of every phenomenon. Every component of reality is simultaneously both physical and psychical, only in different quantity. An actual division of the physical and psychical is equally as impossible as a precise conceptual delimitation between them. The purely physical and purely psychical are both fictive instances.

IV. "Representations" (in the sense of ideational content) are not psychical; but they are that which is exhibited as "physical" in consciousness. Hence the psychical must not be considered as determining the totality of the phenomena of consciousness as such. The independently (substantialized) conceived outer world is constructed from the exhibited "physical elements" in consciousness. Its substantiality depends upon a partly arbitrary, and a partly methodologically conditioned position of thought. Being by nature non-representable, the psychical defies every substantialization.

V. Neither the dualistic, monistic, nor the parallelistic interpretations do justice to the peculiar nature of the relationship of the psychical and the physical.

VI. A vital relation between the physical and psychical exists in self-consciousness between ego-representation and ego-experience. Its form is the perpetual transformation of inner experience into corporeal sensations and then into objective representation, which in association with external perceptions constitutes the personal body. This chain of transformation can also take place in an inverse order. There exists no assignable relation between the somatologically constructed representation of the human body as such, and the immediate psychical, but only between the immediate psychical and the immediately experienced personal body.

VII. Physical and psychical causality are different in nature. Within the physical there exists only a causality of succession; in the psychical a dynamic causality is experienced. For our natural consciousness both causalities can equally justify themselves.

VIII. Science is possible only from the physical. Strictly speaking there is no science of the purely psychical possible. The more physical science attains formal perfection the less does it correspond to reality. The psychological is as little identical with the psychical as the physical is identical with the physiological. The categories of thought are originally psychical experiences. Their applicability to the physiological is an intimation of their inner unity.

IX. Metaphysics is evaluating reality. The concept of reality is of psychical origin. The immediate self-experience of reality in the psychical may lead one to see in the psychical a higher species of reality than in the physical; to view everything physical as the final

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level of transformation of an originally psychical. But the theoretical performance of this idea is frustrated by the intellectualistic incomprehensibility of the psychical.

HERMAN HAUSHEER.

COLLEGE OF PUGET SOUND.

Proceedings of the Aristotelian Society. New Series, Volume XXX, 1929–1930. London: Harrison & Sons. Pp. 322.

This is, on the whole, an excellent volume, from its opening Presidential Address, by Professor John Laird, which examines various lines of argument proposing to place epistemological inquiry first in philosophy, because "we know our own minds best," and denies that these arguments have much force, to the closing essay "Concerning Substance" by Miss L. S. Stebbing. Miss Stebbing is always worth reading, and her critical powers make her a dangerous opponent. In the present instance Professor Whitehead is again one of her chief objects of attack. Whitehead proposes to "blur the sharp distinction between what is universal and what is particular," by his new conception of an "actual entity." His new "monism of process" has thus contradicted "all that was most valuable in his earlier version of his philosophy." Miss Stebbing and Professor Laird both seem hindered by limitations of space from developing constructive conclusions to their arguments.

A paper by Dr. Dorothy Wrinch suffers even more from brevity. It is on "Scientific Method in Some Embryonic Sciences," and deals with the "geometry-like" character of the first classifications of facts in such a field as child psychology. Another paper, by Professor Samuel Alexander, makes a very suggestive distinction between "Beauty and Greatness in Art," but the description of what constitutes greatness is not developed as far as could be wished. A paper by Mr. G. H. Ryle gives a rather valuable review of the arguments for, and especially against, the objective existence of propositions. His conclusion, that a proposition is merely a statement, seems open to the objection that we might sometimes like to say that a pair of statements "mean the same," or "state the same proposition," though using different words.

Two of the more historical papers have a very distinct value. One of these, by Mr. A. Boyce Gibson, takes some of the less plausible aspects of Descartes' theology, and shows them to be more logical than at first might appear. The other, by Professor H. J. Paton, "Is the Transcendental Deduction a Patchwork?" is an able reply to Vaihinger. One would indeed not anticipate that the part of the great Critique over which Kant labored most assiduously would be properly described as a "patchwork." Though the word is too strong, for

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the argument has a consequence, nevertheless Kant does use various levels of exposition, some of which may be by the use of manuscripts of earlier date. But surely some of the most "pre-critical" chapters of the Critique are connecting links, which must have been written late. Kant speaks of authors who would have been clearer, if they had not tried to be so clear. Does he not fall into this error himself, not by use of illustrations, but by beginning all his expositions on the level of his supposed contemporary reader, a level quite different from that of the reader of to-day, and using language which merely hints at his own deeper thought? The effect to us is patchwork, though we may not therefore feel any confidence in the attempts to date passages as 1765, 1770, 1780. Professor Paton's paper and Miss Stebbing's are to the present reviewer the most valuable in the present volume.

HARRY T. COSTELLO.

TRINITY COLLEGE, HARTFORD.

JOURNALS AND NEW BOOKS

REVUE DE MÉTAPHYSIQUE ET DE MORALE. 38e Année, No. 3. (Numéro exceptionnel: Centenaire de la Mort de Hegel, 14 Novembre 1931.) Un cercle vicieux dans la critique de la philosophie hégélienne: *B. Croce.* Hegel et le problème de la dialectique du réel: *N. Hartmann.* Le fondement du savoir dans la "phénoménologie de l'esprit" de Hegel: *Ch. Andler.* Des origines et des fondements de l'esthétique de Hegel: *V. Basch.* Gœthe et Hegel: *R. Berthelot.* Le jugement de Hegel sur l'antithétique de la raison pure: *M. Guéroult.* La Pensée politique de Hegel: *E. Vermeil.*

LA CRITICA. Anno XXIX, fasc. VI. Le due scienze mondane: l'estetica e l'economica. *Benedetto Croce.* Momenti della vita di guerra—Dai diari e dalle lettere dei caduti (contin.): *Adolfo Omodeo.* Germanesimo e storicismo di Ernesto Renan—Saggio inedito de George Sorel (contin. e fine).

Campbell, Charles A.: Scepticism and Construction. Bradley's Sceptical Principle as the Basis of Constructive Philosophy. New York: Macmillan Co. 1931. xxiv + 322 pp. $4.50.

Krzesinski, André: Une Nouvelle Philosophie de l'Immanence Exposé et Critique de ses Postulats. (Bibliothèque de Philosophie Contemporaine.) Paris: Félix Alcan. 1931. 134 pp. 25 fr.

Casotti, Mario: Il Metodo Montessori e il Metodo Agazzi. Saggi di Didattica. Brescia: "La Scuola." 1931. 224 pp.

Boodin, John Elof: A Realistic Universe. Revised Edition with a New Introduction. New York: Macmillan Co. 1931. lvi + 412 pp. $3.50.

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NOTES AND NEWS

The Program of the Thirty-first Annual Meeting of the Eastern Division of the American Philosophical Association, which will be held December 27, 28, and 29 at Yale University, New Haven, Connecticut, is as follows:

SUNDAY, DECEMBER 27

8:00 p.m. Informal Smoker.
8:15 p.m. Meeting of the Executive Committee.

MONDAY, DECEMBER 28

9:30 A.M.

Centenary Session on Hegel

Contemporary Significance of Hegelian Philosophy....*Sidney Hook*
Hegel's Rationalism.....*Morris Cohen*
Hegel's Political Philosophy.....*George H. Sabine*

2:30 P.M.

Division I

The Viciousness of the Subject-Predicate Relation..*Sarah H. Brown*
Reflexive Relations .....*DeWitt H. Parker*
The Philosophical Theory of Classes.....*Paul Weiss*

Division II

Inadequacy of the Hedonistic Interpretation of Pessimism
Cornelius Kruse
Significance.....*A. A. Roback*
A "Desire" Theory of Value .....*Homer Dubs*
Theory of Value and the Philosophy of Mind.....*W. M. Urban*

4:30 P.M.—Tea

8:15 P.M.

Objective Relativism Reconsidered.....*Arthur E. Murphy*
Fact and Event.....*A. Ushenko*
Substances, Events, and Facts.....*L. Susan Stebbing*
(Introduced by A. N. Whitehead)

TUESDAY, DECEMBER 29

9:30 A.M.

Division I

Some Aspects of the Problem of Meaning.....*C. M. White*
(Introduced by G. Watts Cunningham)
Meaning and the Possibility of Verification.....*George Boas*

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Demonstration and Inference in Philosophy.....*A. E. Blumberg*
(Introduced by George Boas)
Is there Logical Force in Demonstration?.....*Marie C. Swabey*

Division II

Circularity in Greek Philosophy.....*M. T. McClure*
A Neglected Main Source in Plato's Thought....*Robert L. Calhoun*
The Psychology and Metaphysics of Ockham.....*T. B. Birch*
Mr. Clarke's New Evolution in the Light of Liebnizian Metaphysics
Adam Alles

2:30 P.M.

Division I

Primitive Mental Attitude and the Objective Method in the Study of Mind.....*Bruce W. Brotherston*
Some Metaphysical Implications of the Pragmatic Theory of Knowledge.....*Theodore T. Lafferty*
Wilhelm Dilthey and the Geisteswissenschenschaften.*George Morgan*
(Introduced by A. N. Whitehead)
The Theory of Truth.....*S. Kerby-Miller*

Division II

Frequency Theory of Probability.....*Ernest Nagel*
Probability, Determinism and Science.....*Benjamin Ginzburg*
Probability and Causality in Quantum Physics....*Henry Margenau*
(Introduced by F. S. C. Northrop)

4:30 P.M.

Annual Business Meeting and Tea.

7:30 P.M.

Annual Association Dinner.
Greeting by President Angell.
Presidential Address: Subjects and Objects.....*A. N. Whitehead*

Information may be obtained from the Secretary, Professor F. S. C. Northrop, 1891 Yale Station, New Haven, Connecticut.

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